Che

Public Kealth Journal

TORONTO, CANADA, DECEMBER 1915

VOL. VI.

NO. 12

PRESIDENTIAL ADDRESS

By MAURICE M. SEYMOUR, M.D.

President, Canadian Public Health Association.

Delivered at the Meeting held in Toronto, on September 3RD, 1915

THE Executive, after very careful consideration, decided last year, owing to the outbreak of the war and to the number of active members of the Association who had either gone to the front, to cancel the meeting it had been proposed to hold in Fort William and Port Arthur.

An effort was made very early this year, to have a meeting held in Vancouver in May, in conjunction with that of the Canadian Medical Association, but that Association having decided to postpone same, the possibility of successfully carrying out this plan was removed.

It has been thought advisable to hold the Annual Congress this year, making the sessions all general. The programme will be concerned with great problems of Preventive Medicine. Discussed under the shadow of the great world war these problems take an added interest.

It is my very pleasant duty upon this occasion, to first express my sincere appreciation of the honor which has been conferred upon me, by being elected President of the Canadian Public Health Association.

I am pleased to see under the circumstances, such a good attendance at this meeting.

The committee in charge of the arrangements, have been fortunate in securing the resence of some of the foremost workers

in public health; it is only necessary to mention the names of Doctor W. A. Evans of Chicago; G. W. Fuller, of New York; Professor Phelps, of Washington; Doctor C. A. North, of New York; and Professor S. M. Gunn, of Boston, to be assured of the success of the meeting.

A well-known American writer recently said: "As it now stands, human life is the cheapest and least regarded thing in the whole—not only human life as it exists, but human life in the future. Both are held in careless disregard. A rifle has more value than the man who shoots it."

It is our duty as public health workers, to do what we can to counteract this condition of affairs, and show that the greatest resource of this or any country is human life, and that its conservation is of the greatest importance.

We are informed that the average length of life in India, one of the most unsanitary countries in the world, is twenty-one years. This is less than half the length of life in Europe and America. Fisher, quoting from Finkleburg, states that the length of life in Europe has been doubled in three hundred and fifty years. At present the lengthening of life is about seventeen years per century in Europe, except in the case of Prussia, in which an increase of twenty-seven years per century is being obtained. The only part of the North American continent, where

statistics have been kept sufficiently long to be of use, is the State of Massachusetts, where the increase has been at the rate of fourteen years in one hundred years.

It having been clearly demonstrated that human life can be prolonged, it is, I think, fitting that we should consider what is being done in Canada to conserve and lengthen this most valuable of all assets, the lives of the people.

Let us consider for a moment the number of deaths, their causes and what can be done

to improve conditions.

I will make use of some figures from Ontario and Saskatchewan, as illustrating conditions in one of the oldest and youngest provinces of Canada.

In the year 1913, the total deaths were, in

Ontario:

Saskatchewan:

34,317 4,150 Ratio of 12.7 per 1000 Ratio of 6.0 per 1000 Prevent'e Dis's, 4,213 623 Ratio of 1.57 per 1000 Ratio of .90 per 1000

Accidents, 1,388 357

Ratio of .53 per 1000 Ratio of .51 per 1000

A fair average value of a life is \$2,000. The losses, therefore, from accidents and preventable diseases for the year 1913, have been—for Ontario, \$11,202,000. and for Saskatchewan \$1.960,000.

These figures show the enormous loss from accidents and preventable diseases. It is, therefore, very plain that our first point of attack must be made against preventable

diseases

The first preventable disease on the list, is Tuberculosis. It caused 2,294 deaths in Ontario, ratio of 95.6 per 100,000 and 269 in Saskatchewan, ratio of 35.08 per 100,000. Authorities tell us that for every death from Tuberculosis, from five to ten persons are left infected with the disease. By multiplying the number of deaths by seven, we will get a fair estimate of the number of cases of tuberculosis.

Dr. Koch, in 1882, demonstrated that the tubercle bacillus was the casue of Tuberculosis. We know that the disease is contracted in infancy by the use of tuberculous milk, and that it is also communicable through the expectoration of the tuber-

culous patient.

We are in possession of sufficient information as to the nature of the disease, its cause, and how it is transmitted. It is not knowledge regarding tuberculosis which is wanted, but the putting into practical use of that knowledge, by persuasion if possible, by compulsion if necessary.

We have not only to consider the loss from death; but it must also be realized that there is a very great loss from the cost of caring for these cases of illness, as well as the loss of earning power during sickness.

In the case of Tuberculosis, on account of the prolonged time and duration of the disease, and the necessity during the later stages, of providing so much care and attention, including loss of wages, the cost is put at \$3,000.

At this estimate we get the following results:

Ontario:

2294 cases x \$3000 . . \$6,882,000 Add \$2000, as value of each life 4,588,000 \$11,470,000

which gives the total of \$11,470,000 as the toll in money value exacted in 1913, in this province, by Tuberculosis.

Saskatchewan:

Giving the total of \$1,335,000, as the toll in money value exacted in the same year, in the province of Saskatchewan, from the same disease.

The prevention of human tuberculosis of bovine origin, involves two quite different considerations:—1. The control and elimination of bovine tuberculosis. 11. The prevention of infection of human beings from material containing bovine bacilli.

Two years go, I had the cows supplying milk to two of our leading cities in the crovince of Saskatchewan, tested for tuberculosis, and discovered that 44% of these cows were suffering from tuberculosis. A full report was presented to the Local Legislature. The question was considered and referred to the Federal House.

The method of Bang of Denmark, for the eradication of tuberculosis in cattle, has been widely practised in that country. The principle of this method, is the separation of the healthy from the diseased animals, and the growing of a healthy non-infected stock.

Tuberculin is used for diagnosis. All cows suffering from tuberculosis of the udder as well as those known as wasters, are slaughtered. The herd is then divided into a free and infected portion. The two parts of the herd are then kept completely separated, both in summer and winter. The premises are frequently and thoroughly disinfected. It has been found that calves from tuberculous mothers, are at birth free from the disease; they are removed from their diseased mothers, and fed from a healthy source.

To guard against mistakes and possible accidents, the calves, along with the other stock, are tested with tuberculin twice a year, any reactors being at once removed. In Denmark, the veterinary services and tuberculin are supplied gratuitously. Bang lays great stress upon the killing of cows suffering from tuberculosis of the udder.

While it is admitted the Bang system is effective, it is not being used to any great extent outside of Denmark, because it involves a lot of extra labour, care and watchfulness, for a long time. It would be well if it could be adopted in this country, as it would furnish a method of eradicating tuberculosis at the lowest cost.

For further information on this important subject, I would refer to the report of the Committee of the International Commission for the Control of Bovine Tuberculosis, appointed by the American Veterinary Association, at their meeting in Chicago, September 1909, and officially approved of by the Governments of the United States and Canada.

From appearance, the eradication of bovine tuberculosis from our herds, is going to be a long and tedious process.

While milk is one of the most valuable of foods, it is also the cause of more sickness and deaths, than any other article of food.

It has been shown that at least 10% of samples of market milk contain tubercle bacilli. While many cities realize the importance of dealing with this infectious milk, in order to prevent human disease, there is a very large part of the country in which no precautionary methods are being carried out.

While time will not permit me to go into details, I must call attention to the fact, that after the health of the cow, the next order of importance is cleanliness, especially that form of cleanliness which prevents the

contamination of the milk by the admixture of cow manure.

Remember that clean milk cannot be got from a dirty cow. The old-fashioned wide open milk pail, should be replaced by a pail with a cover with an opening not larger than five inches in diameter. That milk should be kept cold; and that all milk not produced under conditions required for certified milk, should be pasteurized.

A late number of the Journal of the American Medical Association well says: "That milk to be of high quality

- Should have good value suited to the needs of the customer.
- (2) Should be free from visible dirt, unpleasant odors and tastes.
- (3) Should not contain an excessive number of bacteria, and
- (4) Should be free from disease germs."

The purely chemical contents of milk are not deemed of as much importance as was formerly paid to them. From a health view the most important criterion in determining the presence of disease producing micro-organisms, is the bacterial count, and this should, wherever possible, be made use of.

A very important element in the production of good milk, is the thorough appreciation of the above mentioned facts by the dairyman. Expensive buildings are not necessary; as it has been shown that clean milk can be produced with the most simple equipment.

Importance of early diagnosis:

Attention should be called to the importance of an early diagnosis of tuberculosis. It is really extraordinary that some physicians will tell patients that they have not tuberculosis, because upon examination of the lungs, no evidence of disease is found, overlooking the fact that Tuberculosis may be present in an active condition for a long time, and that it is only when the disease has produced destruction of tissue, that changes are present in the chest.

To diagnose Tuberculosis in its early stages, is a difficult matter; but it is the time that it is most important to do so, and it is then that treatment can be instituted which gives such satisfactory results. A diagnosis can, however, be made; but in order to do so, a careful inquiry should be made into the history of the individual; his surroundings and symptoms; a physical examination of

all the organs involved; and an examination of the blood and sputum, aided finally by

one of the tuberculin tests.

If, after taking sufficient time to make this examination in a thorough manner, you are convinced the patient has Tuberculosis, tell him so plainly and frankly. Unless you convince the patient of the truth of your findings, you will not have his co-operation in carrying out your plan of treatment, which is absolutely essential to success.

Tuberculous patients should be taught to look upon their infection as a disease, instead of a crime, and not endeavour to hide it from the public and deceive themselves. One of the greatest difficulties in the successful treatment of tuberculous patients is their unwillingness to admit they have the disease. How many do we meet, who would rather die deceiving themselves, at the same time thinking they are deceiving those around them than admit they have Tuberculosis, and live.

The prevention of tuberculosis must be

based upon certain important facts:

That the disease is not inherited, as was believed before the discovery of the casue, viz., the tubercle bacillus; but that it is contracted and spread from one human being to another by direct association; and from cows from tuberculous milk.

Education of the public is most important. They must be taught that Tuberculosis is a contagious disease, and that in the case of man, the danger is in the expectoration, which should, therefore, be properly destroyed, and in the case of cattle, that milk should only be used from tuberculin tested cows, or be pasteurized.

Saskatchewan has passed Legislation prohibiting the use of the common drinking cup and roller towel in public places, this is a law that should be put in force in all

the provinces of Canada.

A few years ago, a resolution was passed by the Canadian Association for the Prevention of Tuberculosis, recommending that all hospitals in Canada receiving government aid, be compelled to care for cases of tuberculosis. This was a move in the right direction, as it is most essential for the protection of the community, that the advanced case of tuberculosis, especially among the poor, be cared for in a hospital, thereby reducing the danger of infection of his associates. Another reason why general hospitals should care for cases of tuberculosis, is, that owing to the very

chronic and protracted nature of the disease, patients object to going to a Sanatorium, if it is very far from their home and friends,

Tuberculosis should be reported to the health authorities. This enables assistance being supplied, when required, as well, as such supervision as will lessen to the smallest amount, the danger of spreading the infection.

The control of tuberculosis, is one in which all the different associations and agencies interested in general welfare must co-

operate.

The medical profession have demonstrated the cause of the disease, and have pointed out the conditions under which the disease, is contracted, so that its prevention is now more of a sociological than a medical problem. The beneficial results, which have been accomplished in the education of the public, point to the need of its continuance with all possible enthusiasm.

The next disease causing the largest

number of deaths is

TYPHOID FEVER

Rosenau says: "Typhoid Fever appears to be a disease of defective civilization. Four hundred deaths in Ontario and one hundred and seventeen in Saskatchewan in 1913, is a very large number, from a disease that is preventable.

If a few deaths from cholera, were to take place in either of these provinces, how quickly measures would be taken to stamp

it out

There is considerable similarity in these two diseases, as in both cases they are contracted by the alvine evacuations of the sick person, getting into the food or drink of those who are well.

In the case of cholera, the patient is very violently sick, and death in many cases

quickly intervenes.

In typhoid, the case is a long lingering one, with also a very high death rate, People have, however, got to look upon typhoid, as simply "The Fever" with very little fear.

Typhoid fever is a disease in which state aid is necessary for its control. The knowledge that the germ which causes the disease is thrown off in the alvine evacuations, indicates the need of caring for human excreta in a way that it will not spread this disease.

Experience teaches that wherever large numbers of people are congregated, typhoid fever invariably develops, unless proper precautions are taken for caring for the excreta.

The enlistment of the services of the engineering profession in public health problems, has had a most beneficial result. By the nature of their training, they are well fitted for dealing with large numbers of people, while the medical man has heretofore been interested principally with the individual.

In connection with Typhoid Fever a few words on Sewerage owing to its importance with the prevention and control of this

The problem of efficient sewerage and sewage disposal is one of the most important branches of public health work in reference to typhoid. With this problem are interlocked many other factors such as, wholesome air supply, wholesome subsoil conditions, pure water, satisfactory milk and avoidance of disease transmission. Health authorities cannot afford to neglect this important phase of work, it requires control dictated by the best scientific and technical knowledge.

Before the water carriage system of domestic sewage was introduced the problem was simply one of efficient management and attention with reference to protection of waste matters and their ultimate surface disposal. All appliances and operations were above ground, subject to inspection and although accompanied by many objectionable features, the privy, or earth closet system if properly operated gave better results than a water carriage system, badly designed and badly constructed.

The water carriage stysem, or system of laying underground pipes through which domestic sewage is flushed or carried by aid of water brought about conditions requiring an ultimate point of discharge where a large amount of water accompanied by a proportionate small but dangerous amount of sewage is concentrated.

The early custom of this country as with all other countries, was to treat this discharge as simply drainage and outlet it into any convenient stream or natural topographical drainage artery. The objections to this custom have become very apparent with our knowledge of the transmission of disease infection, and a growth of population is always now accompanied with a struggle to obviate the objectionable features of the water carriage system of sewage. The

natural topographical drainage arteries present in many cases the only sources of water supply for municipalities, farmers engaged in stock raising, milk producing, etc., and naturally there is a growing and decided objection to these water supply sources being mixed and contaminated with domestic sewage. The efficient control of this problem is perhaps one of the most difficult in public health work, as different localities and varying conditions appear to call for expert or independent investigation and final treatment. The problem naturally divides itself into two parts (a) The Sewer System, and (b) The question of what to do with the sewage. The whole subject is, however, so interpenetrated with engineering and chemical questions that it is difficult to deal with it in any detail in an address of this nature. Certain generalities may, however, be admitted, generalities which are, or may be, the basis of health regulations and control. The main difficulty in formulating specific regulations dealing with engineering and chemical propositions of this character appears to me to exist in the reasonable acknowledgment that the whole subject has not yet arrived at anything tike final investigations and determination. A few years ago we were led to believe that the septic tank was the final word in sewage disposal, then the British Royal Commission on Sewage Disposal opened our eyes to the defects of the septic tank, and told us that the sludge question was just as alive as ever, now we have much talk and literature with reference to a double deck tank, the lower deck being the old septic tank and the upper one a continuous flow tank, and last of all we are told that if we will only keep stirring the liquid sewage along with the solids for a sufficient length of time and pump air into it, it purifies itself, this being called the "Activated Sludge System." Now suppose we were to introduce specific regulations with reference to motor cars and state a required form of construction in detail, prohibit all other designs, we would at once cancel all development in improved design and construction and so with reference to sewage disposal we must be very careful in any of our regulations that we are not stultifying initiative or encouraging conservative uniformity.

Legislative regulations with reference to control of sewerage and sewage disposal must therefore in my opinion be general and include factors which may be accepted as axiomatic.

With reference to (a)

A System of Sewers

In any new system, or in any alteration to an old system, the chief aim should be to separate the domestic sewage from the surface water. The adoption of what is termed the combined system, which discharges both domestic sewage and street surface water appears to lead to no end of trouble, in the event of final treatment of the effluent being required. The fluctuation between the ordinary domestic sewage flow and extraordinary rain falls appears to demand an elasticity in any disposal works both difficult and costly to obtain. In fact it appears that with the combined system, the only practical method is to allow a mixture of sewage and surface water over a fixed volume to discharge without any form of treatment. This of course can never be wholly satisfactory. Apart from the question of sewage disposal, the combined system of sewerage provides a very objectionable feature, in as much as the sewer pipes must have a sufficient diameter to take maximum rain falls apart from the ordinary domestic flow, consequently except under high rain fall conditions, the sewers are not properly flushed and act as containers for sewage solids with the resultant sewer gases and chokages. The sewers for domestic flow should be just of that diameter that they will effectually deal with the flow, providing a depth of flow sufficient to carry all solids as rapidly as possible. Street and surface water should be dealt with by an entirely separate system of pipes. Regulations should provide for water tight joints and a sufficient number of manholes to provide access to the system at all bends and changes of gradient and not more than 300 feet apart. In hilly districts special ventilation pipes should be provided in lieu of manhole open gratings.

Is it possible to imagine anything more objectionable than a system of underground sewers, which are leaking their contents into the surrounding soil, where leaking water mains may be laid in parallelism; or a system in which the solids collect, undergoing purification, awaiting a rain storm for their removal, or a system which in the event of any choke requires breaking into with all the inconvenience to the public adjoining? Regulations can be formulated and in-

sisted upon which will guard the public against many of the objectionable features attending a sewer system carelessly designed or carelessly constructed.

With reference to (2)

What to do with the Sewage?

It is apparent that the time is fast approaching when Dominion Legislation will prohibit sewage discharges from entering inland waters unless previously treated. Several of our provinces have already adopted independent or local legislation requiring any scheme for sewerage to be accompanied by a system of sewage treatment. Regulations with reference to sewage treatment must as has been stated be of a very general character, each case being dealt with practically on its merits with reference to local conditions. What may be considered necessary in one place may prove a hardship in another. In the Province of Saskatchewan there are certain cases where the sewage is diluted by rivers of large volume and in others where the streams receiving sewage are practically without flow in the summer season. In the latter cases the streams form ponds throughout their beds which in the past have been used for watering stock, and it is important that the value of these streams for stock watering be preserved as far as possible, this demands a high degree of chemical purification and calls for extensive and costly plants, both for the removal of solids and the oxidation of the organic matters in the liquid sewage. The Provincial regulations are, therefore, of an elastic character and it would be difficult for them to be otherwise. The chief aim in most cases is to destroy the infective properties inherent to sewage discharges, and it is found that chlorine is the best disinfectant agent for this purpose, granted that the sewage has undergone a preparatory treatment for the removal of solids and in some cases for the removal of putrescibility by aid of percolating filters. The two storey tank appears to present certain advantages over the septic tank on the continuous flow sedimentation tank from which the solids are periodically removed before they putrefy. The two storey tank delivering a fresh sewage liquid is favorable to the action of percolating filters or to chlorine disinfection, while it delivers a form of sludge easily handled and well The septic tank is practically rotted.

scrapped, and where continuous flow sedimentation tanks have been constructed, such are being re-constructed in many cases into two storey tanks.

Apart from regulations with reference to design and construction, a public health department is at a disadvantage with reference to the most important factor in obtaining results from sewage disposal works, viz., control of management. It is found with the changing of the personnel of municipal representatives and of engineering staffs, that it is extremely difficult to maintain that interest and attention to the operation of sewage disposal works which they evidently require. This can obviously only be counteracted by frequent inspection and reports, so that municipalities may be fully persuaded that permanent and expert management is constantly required in order to keep works up to their highest point of efficiency. Perhaps one of the main advantages of the two storey tank is that it does not require anything like the amount of attention in connection with sludge removal as other sedimentation tanks. A decided advantage is gained by providing say six months sludge storage and a period which will carry well over the winter conditions. When tanks of the ordinary type have been installed, although all the appliances and valves may be at hand for the removal of sludge, they are usually neglected to the extent that they are operated as septic tanks. This applies even more particularly to humus tanks used for the purpose of collecting suspended solids evacuated from percolating filters. This humus we find to be as a rule highly putrescible and if allowed to enter a stream of small volume forms beds of black mud deposits of a highly objectionable character.

There is a very complete installation of sewage disposal works in connection with the City of Regina, where the discharge enters a creek of small volume, and practically without natural flow during some seasons. The works consist of preliminary screening, continuous flow sedimentation tanks and percolating filters of rough The sedimentation tanks broken store. provide a contact period of about six hours while the filters are rated at about one acre per each 20,000 of population. The liquid sewage from the filters is passed through final sedimentation tanks allowing two hours contact. The tanks are all built

on the one storey system, and valves and appliances are to hand for cleaning out the collected solids at necessary intervals. cently complaints were made by farmers located on the banks of the creek below the outfall works as to the condition of the An examination of the works early stream. this spring proved that the removal of the collected humus was being neglected and that the tanks were practically full of solids which were being carried away by the flowing sewage into the creek and causing the nuisance complained of. It was calculated that at least 347 cubic yards of humus matter had been allowed to discharge into the creek, an amount sufficient to use up the dissolved oxygen at 14° C. from 17,350,000 gallons of water, and considering that the natural flow in the stream has been at zero for the last two years, it is easy to understand that there was good cause for complaint. The point which it is desired to make is that the use of the two storey tank with six months storage for humus would have taken the place of the necessity of removing the accumulated sludge every forty days required by the size of the tanks. Attention to cleaning out the tanks has since cleared up the effluent to a remarkable extent, although the stream for a considerable distance below the works continues to suffer from the previous collection of humus.

The duties of a provincial health authority cannot be said to cease when plans for any proposal have been submitted and authorized. In order to obtain and maintain efficient results regular inspection of all work is absolutely necessary.

The co-operation of these two professions has brought about the efficient plants for disposal of sewage, as well as the works for supplying pure water.

Typhoid Fever is most prevalent in the country districts of Canada; where the insanitary privy, open to flies, and the unprotected well, exist to such a large extent. It is here that the campaign for the reduction of typhoid fever should be carried on.

Typhoid inoculation has long passed the experimental stage. The public should be informed of the importance of the use of typhoid inoculation.

In the case of typhoid fever, the cost of sickness is put at \$200. At this estimate, we get the following results:—

234,000

Ontario:

Add to that \$2,000 as value of each life	892,000
Making a total of	
Saskatchewan:	
117 cases x \$200	\$ 23,400

446 cases x \$200..... \$ 89,200

PNEUMONIA

each life....

is the next on the list as causing a high death rate.

There are two well known types of this disease. (1) The Bronchial, Catarrhal, or Lobular, and (11) the Lobar. The first is primarily an infection of the terminal bronchi which later extends to the air cells.

Catarrhal or Bronchial Pneumonia is a common secondary infection of measles, whooping cough, diptheria, scarlet fever, bronchitis, small pox, erysipelas, typhoid, enteritis, and rickets. This form of pneumonia causes more deaths among children than do the above mentioned diseases. Middle age is comparatively free from this disease, although many cases occur among the aged. It is in all ages dreaded as a possible complication following severe injury, exposure and operative proceedings.

The micro-organisms found are the pneumococcus, streptococcus, and Klebs-Loeffler and usually as a mixed infection.

In concluding this it may be pointed out again that lobular pneumonia can be best prevented by taking care to prevent the spread of the various exanthema and other diseases of childhood, however, trivial they may appear in themselves, and secondly, by educati g mothers and guardians to provide proper clothing for their children, that they may be protected from exposure and chills.

To prevent the spread of lobar pneumonia, the fact should be emphasized that we are here dealing with an infectious disease demanding all the precautions required in the treatment of such.

By these measures, we can reduce very materially the mortality from these acute pulmonary infections.

INFANT MORTALITY

Deaths under five years of age in Ontario : 9515
In Saskatchewan:
1456 191.1 per 100,000
Under one year in Ontario :
7596
2678 100 per 100,000
Under one year in Saskatchewan:
1111
182 24.2 per 100,000

In a study of 10,000 cases of consecutive admissions to the Obstetrical Department of Johns Hopkins Hospital, Dr. J. Whitridge Williams, Professor of Obstetrics, found that out of 705 foetal deaths, the four most important causes were:

(1) Syphilis 26%

(2) Unknown 18%

(3) Dystocia, including deaths following mechanically difficult labor whether operative or spontaneous.

(4) Toxaemia was responsible for only 6.5%.

In order that the most use be made of the valuable information supplied by these figures, the doctor should see the prospective mother as soon as she suspects that pregnancy has occurred.

He should make a careful study of the history of past illnesses and confinements. If accounts of previous miscarriages are given, the fact that syphilis is the most common cause of these mishaps should be remembered and definite information upon this point should be obtained if possible by the Wasserman test.

A careful examination of the teeth, lungs, heart, blood vessels, and blood pressure and if near term, a measurement of the mother's pelvis should be made to discover if any obstruction to birth exists. The noting of any swelling of the feet and ankles, as well as examination of the urine to find out how the kidneys function. If along with the above procedure the expectant mother is instructed as to personal hygiene in diet, baths, clothing, fresh air, sleep and exercise, and is duly impressed with the necessity of making use of the information in order to conserve her strength for the baby and to prepare herself for the strain of labour and nursing.

Every attention is given to the importance of preventing the occurrence of infection at the confinement, either to the mother or child.

The best results in prenatal care are obtained where the father is also instructed in the importance of doing everything possible to preserve the strength and well being of the mother for the good of the child.

Prenatal care should be a practical application of our knowledge of preventive medicine to Obstetrics. This, as I have already said, means the keeping of the prospective mother strong and well, to be forewarned and prevent dangers. We keep the expense of a normal case at the lowest amount and the providing of the best possible skill in a hospital for the abnormal case.

While prenatal care has been proved to be the means of reducing materially infant loss, it is also a means of saving a great many mothers. The greatest loss of infants occurs during the first month of their existence. The education of the mother will be the principal factor in the reduction of this human waste. She should be taught the importance and value of breast feeding; if this be impossible she should then be given definite reliable information as to the best methods of artificial feeding, including the nature of the food, its preparation, the amount and time when it should be given. The danger from flies and heat should be made clear. It cannot be too strongly emphasized that flies are babies' greatest enemies. They must not be allowed to come in contact with babies' food or playthings, owing to the danger of their carrying infection. It is well known the important part played by flies as a cause of summer complaints of babies.

While information is being supplied the mother as to the proper care of the children, better results would be obtained if the instruction was given also to the father. They should be informed regarding the communicable diseases of childhood; the protection that can be afforded by vaccination; the value of quarantine and isolation; and last but not least, the proper care of

the children's teeth.

The development of the Science of bacteriology has not only taught the causes of many diseases; but it has also shown us the means which can be taken to prevent them. In the care of the child, we have had in the last few years much valuable information in the importance of the preservation of

children's teeth. Parents should be taught that the first or milk should be cared for by cleanliness, as their presence until they are replaced by the second or temporary teeth is required for the proper development of the child's jaw bones, both upper and lower. The first teeth are to the proper growth and development of the jaw what the reinforcing is to the preservation of the strength and shape of concrete work.

The disfigurements one sees every day in the features of children and adolescents might have been prevented if parents had only known and cared for their children's first teeth. If through want of proper attention, cavities appear in the first teeth, the services of a good dentist should be secured in order that the tooth be preserved during the period of its usefulness. The first set of teeth prepare the way for the second and keep the jaw the proper shape for the growth of the second teeth.

If the first teeth are lost before the second are ready to come through the jaw shrinks, and the second teeth have not the necessary room, hence the irregularities of the teeth

so often seen.

A baby's tooth brush saves baby's teeth. The second teeth can and should be preserved as we now know that many diseases supposed to be caused by some constitutional causes, called uric acid diatheses, and other names expressing our want of definite knowledge are now known to be caused by pus infection often connected with a diseased tooth. Rheumatism, Sciatica and different forms of neuritis are among the diseases referred to as being connected with diseased conditions of the mouth. Dentists tell us that 95 out of 100 adults have Pyorrhoea or Rigg's disease; fortunately now that we know the cause of this desease, it is both curable and preventable. The importance which is being paid to oral hygiene is most commendable and education of the public as to its value will do much to reduce the number of cases of indigestion, heart, throat and ear diseases as well as cases of pneumonia.

Children and adults should have their teeth examined and given the necessary treatment at least every six months. If this were done the general health of the people would in a few years be very materially benefitted, and store teeth would not be so commonly in use among people of middle life. Teeth are intended to last as long as

life, and can be made do so with proper care.

In Dr. Truby King's book on the baby is found a quotation from Herbert Spencer

that is well worth repeating.

"Is it not monstrous that the fate of new generations should be left to the chances of unreasoning custom, impulse and fancy, joined with the suggestions of ignorant nurses and the prejudicial counsel of grandmothers? To tens of thousands that are killed, add hundreds of thousands that survive with feeble constitutions and you will have some idea of the curse inflicted on their offspring by parents ignorant of the laws of life."

The time has now come when we must give more attention to child rearing. The belief has been rather general that women by instinct know how to manage babies. That this is not the case, the large mortality among infants is proof. In order that mothers be properly taught, it will be necessary that more attention be paid in the medical colleges to this important subject.

Aid to Expectant Mothers

For the past year the government of Saskatchewan has been assisting needy expectant mothers to the extent of twenty-five dollars. This is for the purpose of securing competent medical attendance at birth, as well as supplying the necessary articles for that important event.

I am sorry to say that as yet we are not able to make this grant to all mothers; but only to those who for financial reasons, are unable to secure the necessary medical attendance. The sum of fifteen dollars is paid to the physician who attends the case, and ten dollars is given the expectant mother

as above mentioned.

In order to prevent any abuse of this aid, application to the Commissioner of Public Health must be made, through the Registrar of Births, Marriages and Deaths of the district, who must recommend the application before it is acted upon. The plan has been working most satisfactorily, and is doing an immense amount of good. After some experience with its working, I am satisfied that the expenditure for this object is one of the very best made by the Government of this province.

MEDICAL EXAMINATION OF SCHOOLS

Canada should, as England has done, make itself responsible for the physical welfare of school children. The necessity for this was well illustrated by the information obtained when medical examination of school entrants was begun. It disclosed the fact that a large proportion of the oncoming generation was already physically deteriorated at five years

To give a single illustration: Some 7,500 London children in the Infants Departments of the schools were medically examined, more than 5,000 were found with teeth already decayed and in addition over 2,000 defects of nose and throats mostly adenoids and enlarged tonsils, 600 of ears and hearing, 450 of the eyes and sight, as well as some 600 other defects of various kinds. The public should be informed of the necessity of discovering and dealing with physical defects and should insist upon authorities establishing a thorough system of medical inspection of schools.

The best results will be obtained when this inspection is made part of the duties of the health department and not left as it is in some districts entirely in the hands of

the educational authorities.

HOSPITALS

In the solving of some sanitary problems, the caring for its victims is in the case of communicable diseases one of the means of eradicating the conditions creating the problem, consequently hospitals are required. To procure and keep them going is not an easy matter in the newer districts of the country.

I will give a short account of a plan that has worked out very successfully in Sask-

atchewan:

THE EVOLUTION OF A MUNICIPAL HOSPITAL

There is hardly a public duty which has such a strong claim on the careful and serious attention of the governing authorities, in a small urban district, or a rural municipality, as the provision of adequate care and protection of the sick.

The manifold difficulties (due mainly to geographical causes and financial stringency) in coping with this proposition, are only

too familiar.

At least one highly commendable solution of the problem may be illustrated by a brief review of the system in operation at the United Municipal Hospital at Lloydminster.

Previous efforts at successfully maintaining a hospital there proved a failure.

The radical and direct causes of the insolvency of the hospital, were undoubtedly:

(1) The precarious and unreliable nature of the sources of finance. The hospital was supported on purely charitable and voluntary lines; it was at the mercy of donations, subscriptions, and contributions, for means to cope with its liabilities; such voluntary sources of maintenance were naturally prone to fluctuate, while the expenditure of the hospital remained unchanged; hence the expenditure contraction of debts. There was no reliable system of finance in operation, which could guarantee a regular and permanent income to the hospital to cover necessary expenses.

(2) The failure to collect the fees. This was due to the absence of suitable means of recovery from defaulting patients, especially from the scattered population, to the high rate of charges, viz., \$2.50 a day, and to the

poverty of the patients.

Thus, while the hospital depended on such uncertain and precarious sources of finance, the equipment and service provided were inefficient, and all efforts to keep the affairs of the Fospital from a state of insolvency proved futile, with the inevitable result that, two years ago, the doors, owing to sheer straitened circumstances, were closed, and many cases in the district proved fatal, which might well have been saved by such attention as a hospital might afford.

The New System

Just as the failure of former efforts was directly traceable to bad methods of finance, so the secret of the success of the new system was the sound and businesslike basis on which hospital funds were provided. The main features of the new system are:

(1) The hospital was transferred to the hands of a Board, consisting of representatives from each of the municipalities, willing

to contribute to its maintenance.

(2) The entire control and organization of the hospital, as well as the ownership, were vested in this representative Board.

(3) The old method of appealing for charitable subscriptions was entirely abolished, its place being taken by a system which no longer treated hospital support as a voluntary effort, but as a compulsory duty of ratepayers. Thus, each council of the contributing municipality, levied a rate approximating one cent an acre, which is devoted to providing the necessary capital for the hospital, and paying the fees of all ratepayers and their dependents resident in the municipality.

(4) The hospital fees were fixed at \$2.00 and \$2.50 a day respectively, for residents or non-residents in the contributing municipalities. The fees provide for everything but the doctor's charges, for which the patient is himself responsible.

(5) The Board meets once a month; it consists of representatives from six municipalities, including all the Secretary-

Treasurers

(6) The method of payment of fees is as follows: Every patient must present an order from the Secretary of the Council of the municipality in which he resides, before entering the hospital. The hospital secretary renders an account covering the number of patients from each municipality, and in due time, a cheque is issued to the hospital for the amount involved.

Thus the hospital has for two years, under this businesslike system of finance, maintained itself in a continual state of solvency, is well-equipped, adequately staffed and well

patronized.

It is no small boast that, under this system, a homesteader has, for the paltry sum of \$1.60 a year, the use of a well equipped hospital, ensured for himself and dependents.

CENSUS

In the Western Provinces, a partial quinquennial census is taken, but it would be much more satisfactory, if a complete census was taken for the whole Dominion, each five years, as recommended by the Departmental Commission on the official statistics of Canada. The large increase in the population by immigration, renders it very difficult to adopt a yearly standard of increase that would be reliable, and therefore the great need for a census once in five years instead of ten years.

In connection with the census, it would be rendering great assistance if the age of the population was given by periods, as in the United States. It is very difficult to estimate, for instance, the school population of the province, but if the number of persons from six to fourteen years of age was given in the census, that difficulty would be overcome. The same applies to other periods of life in working out, especially, death rates.

There is also great need for a uniform system of making the annual post-censal estimate of population. England uses the methodknown as "Geometrical Progression."

Australia used the "Fluctuation Method," which in brief is to secure an accurate record of each birth, death, arrival and departure each year.

The latter system is best adapted to our Dominion and could easily be put into operation in each Province.

STANDARD FORMS AND METHOD OF COLLECTING AND RECORDING VITAL STATISTICS

The Committee of Public Health of the Commission of Conservation, in its report for 1910-11, makes the following recommendation concerning uniform standards:

"Correct and accurate vital statistics "are the basis of modern sanitation; "they are the gauge whereby we judge "of the progress made against diseases "of all kinds, and whereby we obtain in-"formation for further advancement. "It is essential that there should be a "more uniform and systematic recording "of births, marriages and deaths in Can-"ada than there is at present. There "must be some system which, while "leaving to the provinces the collecting "of the information, will allow of early "and regular returns being made to a "Dominion office, where they will be "carefully collected and published from "time to time."

This question is so important, that a Committee of the Canadian Public Health Association should be appointed to act with the Public Health Committee of the Commission of Conservation, to consider the

following recommendations:

First—Standard birth, marriage and death forms for all the provinces; these should contain a minimum number of questions which should be asked by all the provinces, allowing each province to add the necessary questions to cover local conditions,

Second—A Standard method of collecting these statistics. This would include whether they should be for the calendar year, or whether the year should be, say from July 1st to June 30th. Suggestions as to how to

secure complete registration, etc.

There—A Standard method of tabulating these statistics. At the present time, each province has its own method. If these figures are to be used for Canada as a nation, then there should be uniformity in tabulating, as far as possible.

VITAL STATISTICS REPORT FOR THE DOMINION

At the present time, it is an impossibility to make comparison with the other provinces, owing to the variety of methods in compiling reports, and in several cases the

lack of any reports. Therefore, if the Dominion Census and Statistical Branch would secure from each province, a condensed report after the close of the statistical year, this would enable that Branch to issue a bulletin on vital statistics, which would be of great assistance to the provincial Registrars, and of very great interest to the public. This again emphasizes the need for a uniform standard in forms and methods.

REGISTRATION OF BIRTHS, MAR-RIAGES AND DEATHS OCCURRING OUTSIDE OF NATIVE PROVINCE

The rule established at the present time, is that when a citizen of Saskatchewan dies say in Winnipeg, such death is registered in Manitoba and not in Saskatchewan. A case of this nature occurred recently, and much confusion and delay was caused in finding out where the death was registered.

Under such a rule, the death rate is not correct, as in some hospitals, a large number of deaths take place among patients belonging to other Provinces. Therefore, the death rate for the Province in which the Hospital is located, is raised and no doubt lowered

in the other Provinces.

The following suggestions if carried into effect generally, would overcome this difficulty: Have two columns in the report of each Province, one for deaths occurring in the Province of persons non-resident, and one for deaths of permanent residents, occurring outside the Province.

INDIANS

The Indians being wards of the Dominion Government, therefore the registration of all births, marriages and deaths taking place among them, is looked after by that Government.

The population as enumerated at each decennial census, includes the Indians. When the birth, marriage and death rate for the province is compiled, it is not correct, as no account is taken of these events occurr-

ing among the Indians.

When Indians are considered part of the population of the Province, then it is only fair that some arrangement should be made with the Dominion Government, whereby the registration of all these births, marriages and deaths, should be made to the Department of the Provincial Government having in charge registration. As doubtless this condition exists in other provinces of the Dominion, this is a question that should be considered by representatives of each province.

UNIVERSAL MILITARY TRAINING IN CANADA

A few weeks ago meetings were held in all parts of Canada in commemoration of the year's war, at which resolutions were passed (without a dissenting voice that we have heard of) to the effect, that the principal business of Canadians would be "The War" until it had been brought to a satisfactory conclusion. This is as it should be.

The child that was born on Dominion Day 1867 has grown to be a man, A Canadian Man, and as has been demonstrated is prepared to give of his wealth and life in the performance of his duties.

I do not believe that eloquent speeches made by W. J. Bryan, or the spending of millions by Andrew Carnegie in the building of temples to the Goddess of Peace will have any effect in preventing war. I think Canada has now reached that stage when Universal Military Service should be adopted. I do not by this mean anything of the militarism of Prussia, but I do think that a plan modelled after the Swiss method would be most suitable for Canada.

The system in Switzerland which is working so successfully in Australia and New Zealand makes all able bodied males between seventeen and forty-eight years of age liable for Military Service, but active service begins at the age of twenty, and everybody serves who is physically fit. Those who are exempted are required to pay a special tax for the first eight years, 90 days must be given to active Military Training

for the Cavalry, 75 for Field Artillery and 65 for Infantry.

During the following fifteen years, eleven days each year are spent in training, to keep the citizen soldiers from growing rusty. If this plan could be put in force in this country the result would be that every able bodied Canadian would be a trained soldier fit for active service whenever called upon to serve. There will be more wars and our duty is to be prepared to defend our country. The adoption of this system would also afford an opportunity of giving our young men a course in physical development, and they could also be taught how to take that care of their bodies in a way that would make them strong and virile men.

Just think of what an opportunity during their course of training there would be for inculcating those principles of personal and communal hygiene, that in a few years would have such a radical effect in improving many sections of this country. During the course of training friendships would be formed, opportunities given for the discussion of matters of national interest, a national spirit would be developed that would unite Canada in the strongest possible bond of union, questions of national interest would be discussed and satisfactory solutions found for them. In other words I believe that the adoption of this system would be the means of our developing to the highest point of efficiency those principles of democracy which we are now fighting to conserve, viz.: a Government of the people by the people, for the people.

HEALTH AND CHARITY

By SELSKAR M. GUNN

Anyone who is familiar with the administrative problems of health work and of charity work knows that the inter-relations of these two services are many and complex. Much duplication of work, many examples of inconsistent treatment, and often frictions exist. The present unsatisfactory situation is undoubtedly due in a measure to the fact that public health work sprang from poor relief. As our own organization for the administration of poor relief and public health work is, of course, copied to a large extent from the English system, a brief statement of

the origin of the latter may be in point.

The earliest trace of the beginnings of organized public health work in England are described in the Fourth Annual Report of the Poor Law Commissioners (1838), in which it is stated that the Commissioners had set various physicians "to investigate the eases of 'fever' in the metropolis that was creating so much destitution, and to explore the circumstances which made Bethnal Green and Whitechapel so unhealthy, and therefore so poor." Following this, the first general Health Act in England was passed in

1840, being designed to bring about general vaccination against smallpox; this act was brought into being and administered by the Poor Law Authorities. Eight years later, in 1848, a General Board of Health was established; the Poor Law Commissioners, however, still continued to administer some branches of public health work, and this condition still exists.

The new public health work called into being the Medical Officer of Health; the Poor Law Authorities already had their district medical officers, and the separation between these two medical services has been maintained to the present day. This division of labor did not lead to any serious situation for some time. To quote xtensively from Webbs singularly luminating book, "The State and the Doc-

"For many years the two rate-supported medical services went on their several ways, without seriously infringing on the other, and without raising any question as to the divergence of principles on which they were respectively acting. So long as the Medical Officer of Health was occupied principally with the external environment, with dirt and filth, with stenches and putrefaction, with water supply and drainage, with the provision of open spaces and improved housing-his activities brought him little into contact with the half a dozen respectable private practitioners, who were in the Public Health District for which he was responsible, contentedly going their rounds and dispensing bottles of physic as district medical officers. Gradually, however, the sphere of sanitation and public health has become enlarged. From the non-human environment it has proceeded to the human being himself. The first great task of cleaning up the streets and houses, of providing for the prompt removal of water supply has been to a large extent accomplished. Guided by the illuminating reports of the Registrar-General, and even more influenced by the teaching of bacteriology, the Medical Officers of Health, and the expert advisors of the Local Government Board on its Public Health side, have, during the last two decades, turned more and more from the reduction of the death rate and the sickness rate, to the treatment of the human being who forms, after all, so large and so influential a part of the environ-

ment of his neighbors. The discovery that disease is, in a great number of cases, due to a microbic agent, has, in fact, inevitably led to the recognition that the tissues of the individual human being are even more important (as a soil for the microbic

agent) than anything else."

I believe that this discussion of the English situation applies pretty well to our own conditions. Having looked to England for our methods of handling publie health and charity problems, it is natural that we should have many of the same ills described above. Certainly we overlapping in many instances. Health Departments often furnish supplies to poor families in which cases of contagious diseases exist-families which the same time may be receiving help from the poor department. Persons can obtain in many instances the same relief from either the poor or health department, and the method in which it is dispensed by the two departments is usually radically different.

This points out another defect in the present arrangement, and that is the inconsistency of procedure in the same situation by the two authorities. Take for instance a case of tuberculosis which may come under the Poor Charity Department. In this case the person receiving aid may immediately become a pauper, and the stigma of pauperism may extent to his or her relatives. The poor authorities in the majority of instances will handle the case on the repressive, all-pay-who-can, keepthe-number-down, eliminate-as-soon-as-possible principle; the health department authorities on the other hand are apt to treat the same case on the, everybody-come, allfor-public-service, no - charges - permitted principle. In the latter instance the case is gladly taken by the health authorities. not as a matter of relief, but in order to eliminate a possible focus of infection. This is becoming a general principle with health authorities; and it is now being urged that all city dispensaries be placed in the hands of the health department because of the opportunities it gives the latter to locate and eliminate otherwise unknown sources of infection.

It is quite evident that these confusions of functions as between the Health and Poor Departments must result in many inefficiencies, frictions, and by no means least important, disturbing experiences for the indigent.

I think it must be clear by now what interests poor departments have in disease prevention and health departments have in medical relief. Besides these two official agencies there is the complicating factor of medical relief furnished by private agencies such as the Associated Charities. It is clear that free medical relief must be furnished the poor for a variety of reasons; the problem is to decide just how this relief may be most advantageously administered. Shall the health department assume all this work, or shall it go to the poor department, or shall large parts of it be carried on by such organizations as the Associated Charities?

A number of possible arrangements occur to me. One of these would call for a reorganization of poor departments along the lines of modern organized private charity work. The unsympathetic character of many of our poor departments, and their shocking lack of familiarity with modern principles of relief, is a bar to their administration of such medical relief as we have been discussing. If, however, they could be reorganized on Social Service lines, it is distinctly thinkable that they could handle a considerable part of the situation, working, of course, in cooperation with the health department. should be pointed out, however, that such reorganization must be a radical change from present conditions, and the possibility of such a radical transformation must be duly considered.

A second suggestion would be to abolish poor departments altogether, and put all relief under the health department. This would be a step based on the theory that poverty causes disease, and that it is the health department's function to prevent any and all disease. Such a theory calls for a rather radical enlargement of our conception of the city's proper function in public health work. We have been reminded constantly by some sanitarians hat the function of health departments is preventive and not curative, and that the treatment of disease should not be considered a true function of the sanitary authorities. Such persons would limit the activities of health departments to the germ diseases, some maintaining, indeed, that departments should not even under-

take anything in health education. This point of view is now disappearing; and the idea is spreading that health departments should seize every opportunity to conserve or improve the health of the people. Whether there is justification, however, for the administration of all poor relief by health authorities is a question open to serious doubt.

The third suggestion embodies a combination of the first two. If we are going to have real charity departments and real health departments, there is great opportunity for co-operative effort. Let the health department maintain a free dispensary and clinic; and let the latter be equipped with extension nursing to the homes of the poor, which may be combined with social service investigation. This will allow the health department to secure the advantage that accrues from locating sources of infection, will afford ready and accessible relief to the applicants, and will still leave a large field of endeavor for the charity department. Co-operation of this kind should be especially fostered by municipal organizations in which health and charity departments are placed under the general superivsion of a single commissioner. Certainly there is much more reason for connecting health departments with charity departments than with departments of police and fire.

Whatever solution of the problem is worked out must, it would seem, take into account the probable growth of functions and activities of all our health departments. The old conception of the health authority as a pretty purely police agency is passing, and in its place we are getting the idea of a department which shall do all practical health conservation work. Personally I am a strong believer that the future will see the health department dispensary carrying much of what we have been accustomed to regard as charity work. I believe that all cities should furnish free medical relief to the indigent, and I believe that natural conditions are such that this work will be most advantageously administered by the health department.

I am convinced that the health officer of the future will not only have to be thoroughly conversant with sanitary science, but must also be one of the leading social workers in the community.

THE LAND PROBLEM IN RELATION TO HOUSING

By P. H. BRYCE, M.D.

Chief Medical Officer, Department of Interior, Canada

I N a paper on "Tenements and Tenants," by Mr. N. T. Egington, very recently read before the Conference on Sanitary Inspectors of England which met at Blackpool, as one of a series largely devoted to Housing, various phases of the problem were presented, amongst which were:

(1) The landlord's responsibilities; (2) the tenants' responsibilities; (3) the responsibility of municipal authorities; (4) work accomplished under the Housing Act: (5) effects of bad housing: (6) the

costliness of bad housing.

After discussing these various phases of the problem, the writer came to the discussion of "Some Suggestions for a Policy of Reform," and stated: "Housing is a national problem to be worked out by the various municipalities for the benefit both of themselves and of the state." Amongst the difficulties of the problem the writer placed first, the fear on the part of the local authorities of increasing the taxes through building workmen's houses; but later stated that "Parliament and the municipalities must co-operate both from the point of view of finance and efficiency." As other factors in retarding housing, Mr. Egington referred to the difficulty of acquiring land, the cost of materials and labor and the present system of assessment.

Clearly then it would appear that in most old communities the traditions of land ownership so dominate our thinking that we accept in practice a theory of proprietorship in land, which as above indicated forms the basis of most of the evils attaching to landlordism. Our time will not permit us to indicate all the varying customs and practices relating to the holding of land in different countries, from that of its absolute control by a Pharaoh

in Egypt or that of a legal responsibility for the cultivation and maintenance in good condition of all land in the owner's or tenant's possession under the laws of the ancient Babylonians, to those of countries where land may be held directly from the legislature or from a municipal authority in trust, and where land values form the basis upon which all taxation depends. For our purposes it will be sufficient to recall the practice of two hundred years in America by which Governments gave land away both in the United States and Canada to all comers, free, or at a nominal price, without attaching to the gift practically any responsibilities or requirements. Whole townships were given away to individuals or companies of Associates in Old Canada, which were held in many cases without any tax whatever being levied on unimproved land, while millions of acres are held to-day in Western Canada by railroad companies and land companies unimproved and till recently untaxed, their owners awaiting an increase in value due to the energy of incoming settlers and governmental expen-. ditures. We have similarly seen in successive land booms in Canadian cities everywhere, and in the legalized gambling in town lots that theory of economics, taught by history and verified by experience which made productiveness the one basis of land values, not only wholly ignored, but also laughed at by the boomsters who have often had no stake in the community and who would have us believe that the value of land is exactly what they ean induce simpletons or their own associates to pay for it on the basis of prospective profits.

The inflated values resulting from such booms and the evil effects of having great aggregations of capital sunk in non-pro-Juctive land have been made so apparent to us during the past three years in Canada that it might be thought that all good itizens would urge such a reform as the axation of land values to prevent the repetition of such mistakes in the future. The direct injury to the community, however, caused by the attraction to these boom centres of every class of speculator and of unskilled labor wholly dependent upon employment in building and street making growing out of the boom, has made the relation between the taxation of land values based upon production and the housing problem so evident, that every health official and social worker must see that the housing problem can never be effectively dealt with until the price of land upon which the homes of the people are to be built and the rents to be paid hold a just and even proportion to the earning capacity of the individual workmen. The effects of the anomalies in the taxation of land values can be illustrated in the broadest manner, where the mean hovels, within a block of the municipal palace of the City of Mexico, house a people who die at the rate of 40 and 50 per 1,000, while within twenty-five miles of the city is the great estate of a million acres belonging to a Spanish absentee hidalgo, upon which the land is untaxed. while being devoted largely to the production of pulque, the common drink of the thousands of peons of the city, whom it demoralizes.

The history of the taxation of estates of untold revenue-producing value in London, New York, Chicago or Toronto, is the same, varying only in degree since old buildings whose occupants have been liquor sellers, or worse, have been maintained unimproved on land of enormous value, through its location in business neighborhoods, the landlord being well content with high rentals and but little outlay for improvements, knowing that the land value is being constantly increased by the business energy of his neighbors.

It seems apparent, therefore, that the first essential in any country is to obtain, as has recently been done in England, a complete valuation of all land by expert officers, based upon its producing value

either for farming, manufacturing business or residential purposes, with a view to placing upon it the equalized burden of taxation. Unless we are prepared to accede to some ancient theocratic, feudal or modern Germanic theory of the rights of man, we must accept the principle that the areas of land, necessarily limited in any country, really belong to the people as a whole for their common advantage. Primarily it means that they have a right to a subsistence thereon, and hence follows the right to a habitation thereon. It is further quite clear that the advantage which each will obtain from such a right will depend upon his own energy and ability; but it is also just as apparent that the land being always the same in amount, its value varying ever so much as it may, must depend directly upon the amount of labor spent upon it, added to its natural productiveness, its climate, its advantages of location and so on. Clearly it would seem then that the only thing to which the individual is especially entitled is the usufruct of his energy and ability, which as this accumulates becomes his capital. As, however, this energy and capital are comparatively useless without the protection of organized society, such should pay, proportionately to his holdings, for national and civic protection. While with the present anomalies in old communities of our land system and our outworn systems of taxation, their correction would mean initial difficulties, yet when we see correct theories in operation in younger communities in our own country, their practical advantages become immediately apparent.

When land had but little value in Western Canada, anyone with some capital could purchase as much as he wished and could live in England or the United States, while the expenditure of millions by the Government of Canada on railways and of many millions of energy by incoming settlers and immigrants gave value to their holdings. We have all accepted with good natured insouciance the system which has hitherto existed in Canada, each being content to do a little gambling in the future of land values. Winnipeg, Calgary, Edmonton-even Toronto-are all witnesses to this; but daylight has been let in on the anomalies of the system by the Government of Alberta, which last year passed an Act for the taxation of wild lands, which provided that unimproved lands amounting in all to 28,000,000 acres held by companies or individuals who were not settlers thereon should be taxed one per cent. on the valuation, which, as the average valuation would be about \$10.00 per acre, at once placed a portion of the State tax to the extent of nearly \$3,000,-000 annually on the shoulders of those who were doing nothing to add to the wealth of the people by their energy and residence in Alberta. In addition to this, powers were given to municipalities to place the municipal tax on land values alone, and the method has been adopted by Edmonton and other cities, and while resulting in temporary hardships and inconvenience is adjusting taxes so that the real value of lots in different sections of the city will be established. Property having little prospective value will be sold at what it is worth, while central unimproved property will be built upon and rented at fair rates.

It is interesting to note how here and there in former days these principles of land tenure and taxation were understood and acted upon. For instance, when New York was New Amsterdam an ordinance was passed in 1658, providing that the Director General and Council appoint a surveyor to measure the several hundred vacant lots in the city, and in order that they might be built upon at a reasonable price the lands were to be appraised first by the owner, so that he could not later complain at official valuations, which valuation was to stand so long as the land remained unimproved, the owner paving a tax thereon of 1/15 of a penny on the valuation. Should the owner object, he was free to surrender the property to the city at a price put upon it by the assessor, and the city could sell it at the price so fixed upon to anyone who wished to build upon it, or if the owner retained it and built on it the tax on unimproved land would be remitted. Another remarkable illustration is given from Australia. In 1890 the Colony of Queensland had a Land Bill before the Legislature, drawn up with old-fashioned legal restrictions and conditions, when a student of the taxation of land values, then a member, criticized its provisions and advocated a system of taxation under which there should be, first, a single tax on the unimproved value of all land; second, taxes should not be levied on improvements; third, land held for speculative purposes should be taxed more than that given over to improvements: and, fourth, the actual value of the fee simple should be in every case taken as the basis of assessment. As reported upon this system which exists to-day resulted in: (a) the sale of vacant lots; (b) the subdivision of large park areas in the finest sites to be built upon and the population increased: (e) in increased values on business property through increased population and employment; (d) investment of capital in business and industries which formerly was tied up in land; (e) in house rents being lower than in any other Australian capital; (f) in more business relatively and at prices lower than in any other capital.

Similar applications of the principle exist elsewhere, and where carried out would seem to prove that it does not greatly matter by whom the title to the land is held, whether the government, the municipality or the individual; since in all cases the land bears its evenly adjusted burden. business sites on main streets, which are made valuable because convenient people who trade in them pay high, while outlying sites occupied by the employes of such stores pay small amounts for homes to reside in. There further seems no logical reason why the great store building in which trade is carried on should be taxed, since this is simply added to the price of goods sold to the public, or why the simple structure placed on a workman's should equally bear an unnatural burden, for, when analyzed, it will be seen that in the one ease it would be capital (which is the unexpended surplus of labor), which would be taxed, while in the workman's case it would be the labor itself. Clearly land is the only item of the three, land. labor, capital, which has done nothing of itself to create wealth, but obtains its value only through the community activities to which everyone contributes something. Thus it seems apparent that so far as possible both labor and capital should be as unhampered as possible in their application to social purposes.

The application of these principles to housing will now be seen to be quite simple. A province or its great city offers through its climate, its location, its invested capital and the energy and industry of its people attractions to newcomers, whether from other provinces or as immigrants. In a very definite way all natural and legitimate industries in such places succeed in paying reasonable profits, largely determined by the normality of business competition and the intelligence and energy of the workers. . If, on the other hand, speculation is rampant, values are uncertain and profits hazardous; hence as in war times prices always rise, and clearly it is the casual and superfluous labor that is always least able to claim its share, fix its own value, or make its own terms in the matter of rents. Thus, in the first instance, there is a nice adjustment between capital invested, wages paid and profits realized; whereas in the latter there is no community of interests, each is grasping for what he can get while he may, while the weak are at the mercy of the strong. The effects in both cases on housing are most striking. Thus in steady growing cities, in Ontario as elsewhere, there is usually a balance established between the houses yearly built and those occupied; whereas in other cities the collapse of a boom often means thousands of houses unoccupied, since the temporary occupant out of work will have drifted elsewhere or through inability to pay much rent several of the families of such will crowd into one house to the detriment of health, morals and industry. This may be illustrated by examples from every city, but the following are concrete cases of housing evils that exist in several of the cities in Canada. The Report of the Publie Health Department of Winnipeg for 1913 states:

"A house of ten rooms was found occupied by five families, also roomers—20 adults and two children. Three of the families had only one room each. There were eight gas stoves, and none of these had hoods or pipes for carrying off the products of combustion and the odors of cooking. Two girl roomers occupied a portion of the cellar. The lessee rented the house at \$65 per month, and by sub-letting obtained \$135 per month. It was evident

from the amount of rent charged that the owner was aware of the manner of occupation and desired to share the profits. There was one water-closet, one sink, a bath and wash basin. Two faucets had been fitted on the water-service pipe, and buckets placed under same in lieu of sinks.

"Another house of eight rooms was occupied by five families, who rented rooms furnished from the owner at rents varying from \$17 to \$22 per month. This house, which might rent in various circumstances at \$20 to \$25 per month, brought a revenue to the owner of \$93 per month. The premises were badly over-crowded and the general sanitary conditions very bad. The house was closed."

At the request made to the Health Officer of Ottawa I have received details regarding overcrowding in that city in the district occupied by Austrians and Polacks. That the overcrowding is general and based upon the crudest ideas of living is illustrated by the fact that in 1914 in 17 houses, having in all 84 rooms, the total inhabitants were 234, or just 4 persons to a room. Kitchens and sheds even were utilized for living rooms, and in one or two cases cellars were occupied. Some of the worst cases were the following:

1 room, 15x13x8 .. 8 persons, 195 cu. ft. 1 room, 20x28x7 .. 16 persons, 250 cu. ft. 1 room, 10x13x8 .. 10 persons, 100 cu. ft. .. 4 persons, 198 cu. ft. 1 room, 11x 9x8 .. 6 persons, 132 eu. ft. 1 room, 11x 9x8 1 room, 11x12x7 .. 4 persons, 134 cu. ft. .. 6 persons, 240 cu. ft. 1 room, 12x15x8 1 room, 9x 8x7 .. 2 persons, 126 cu. ft. 1 room, 9x10x8 .. 2 persons, 180 cu. ft. 1 room, 8x 9x7½... 4 persons, 135 cu. ft.

Nothing is more difficult, however, for us than to orient ourselves in great cities, surrounded as we are by hundreds of thousands of individuals to whom we are indifferent and possibly they to us; and I have noted again and again at national housing conferences an indifference or inability on the part of apostles of housing reform to appreciate the fact that in front of health and morals and decent housing arises this old and unsolved problem of the adequate taxation of land values. This indifference is only natural since it involves the supposed present interests of so many respectable members of society

and becomes essentially a matter of morals. The parable of the young man of Scripture who had great riches and went to Jesus and was told, if he would inherit the Kingdom to go and sell all he possessed, exactly illustrates the situation; and many of our so-called best citizens who give alms and spend much time in charitable work will scoff at such theories as the taxation of land values as being anti-social and subversive of organized

society.

How slow is progress in housing reform even in England where the evils of landlordism have so long been felt, is seen in the Local Government's Report on Housing and Town Planning for the year ending 31st March, 1914. In all 79 urban authorities during the year borrowed £656,860 for schemes to erect 2,465 houses, while 1.338 houses were demolished or closed, or the total operations in a population of 36,000,000 provided new houses for say 6,000 persons, when the natural population increase was at least 360.000. These urban schemes meant the purchase of nearly 200 acres at what seems to us in Canada a very low average figure of £255 per acre. A reviewer of the report pertinently remarks, however, that it would be instructive to know what the previously rateable values of the land were as compared with the prices paid. The report does not give these, but the reviewer states that enquiries in Parliament in particular instances had revealed some extraordinary differences, land being very cheap so long as it was the basis upon which taxes were paid, but when the municipality came to buy it "the price might be anything from fifty to four hundred times the annual value for rating purposes." Such, too, is the universal experience in Canada whenever a city buys property for any purpose, and illustrates how the public tolerate an extortion in the matter of land values on the general reasoning that such gives value to each individual's property, quite oblivious to the fact that productiveness must be ultimately the basis of values.

In any housing improvements by the municipality it is assumed that the tenants will be charged a rent just equal to the charges for interest, sinking fund and upkeep on the cost of the land and houses;

which, of course, will be high in proportion to the unduly high cost of land. It is not difficult therefore to see, if an accurate valuation by expert valuators of land in all parts of the country and city were made and the tax placed upon the land at its relative values and not on the houses or improvements, that municipal purchasing could proceed exactly on the same basis as that of private purchasing, viz., a value based upon a reasonable advance on the actual earning power of the land whether as agricultural land, or for residential or business purposes. In such a way and no other does it seem possible for the problem of overcrowding to be met. Clearly with abnormally high prices on land the ordinary workman cannot buy land to build upon, neither can a builder or municipality erect houses so as to fix rents in keeping with the ordinary wages paid to the workman or tenant. The illustration of overcrowding already given makes this plain. When it is possible for the owner of a single lot in New York to receive as ground rent \$120,000. without any charges upon this, for a single year from a lease-holder who has built a building thereon, and gets enough of rents to not only pay the ground rent and taxes but also his own profit, it seems quite clear that so great a difference between taxation and actual values generally exists under our present system of taxing improvements that no housing reform worth bothering with will be brought about until land values are made the common basis of taxation on the broad principle that land is a monopoly, limited in its very nature; that the land in itself is valueless, that it belongs to the municipality in the sense that it only obtains a value through the labor, energy and expenditures of the community as a whole, and that it is national for the reason that only through the protection of government can security of the person, of industry and of business become possible.

In national politics it is being discovered, not pleasantly or even from a great desire to recognize the fact, that the workman has really a share in the profits of land, as of the coal mines, when he has come to object to seeing all the increased profits due to the war going into the hands of the coal barons; but the essential truth

of the facts of national ownership in the land, water powers and other natural resources becomes patent where even the government, saying it needs money for the war, is taking its share of the profits for public purposes after allowing a reasonable profit to the coal owners. We are indeed being taught many economic truths in these days of national stress and suffering; while nothing is brought home to us more closely than the moral taught in the fable of the "Sacred Mount" where Menenius Agrippa taught the Roman plebs the unity of all members of the body politic through the story of "The Belly and Members."

I may conclude this paper on a subject so fascinating because of its supreme importance as bearing upon the housing problem by a quotation from a paper by Mr. Raymond Unwin, M.R.I.B.A., on "The Relation of Land Values and Town Planning." After discussing the many factors which give a different value to different pieces of land in a city or country, such as good business sites, proximity to railway stations, to public improvements, and so on, Mr. Unwin says: "There can be little doubt that urban problems would be immensely simplified if the whole of the land on which the city stands and over which it may be likely to extend were owned by the community, and if the rent that is payable by the privileged for the best positions could be used to defray communal expenses, the benefits of which are enjoyed by all."

Give each new day its own good cheer, All other days apart, And every day throughout the year Keep Christmas in your heart.

A. D. WATSON.

CONTROL OF VENEREAL DISEASES IN MUNICIPALITIES

By W. A. EVANS, M.D.

Prof. of Preventive Medicine, Northwestern University Medical School Health Editor Chicago Tribune

T HAT a disease shall be worth while from the public health standpoint at least two requirements must be met.

There must be cases enough and there must be reasonable possibility that efforts at control can succeed.

There are many estimates of the amount of venereal disease among the people of open communities. In my opinion the best of these is that of Banks, of the Public Health Service, who estimates that one person out of every forty has been infected with veneral disease.

To find proof that venereal disease can be controlled, let us turn to the records of the United States army.

The constant non-effective rate of the United States army from syphilis was 2.68 in 1909; in 1913 it was 1.17. For "all venereal disease" the fall in the same period was from 11.14 to 3.38.

I do not know of any figures which show that any open community has lowered their venereal disease rate, but then no American municipality except New York has begun serious effort to control venereal disease.

When in medical command of a voluntary cavalry regiment I decided to have the men use the A. & N. packet. When I tried to distribute them through the ambulance corps I met with no success. When they were placed in the hands of the company sergeant the men began their use. This indicated to me that the soldier would not go to certain people for a packet. Carrying out the line of thought I came to the conclusion that vending machines would be the ideal method for distributing preventive packets.

The measures which are proving satisfactory in the U. S. Army and Navy are as follows:

1. The A. & N. prophylactic packet was designed, as to formula and package, by Government officials, making use of the suggestions of Metschnikoff. For a time it was distributed by the Government to hospitals. Now its sale in the post exchange is recommended by the surgeongenerals.

2. The rules prescribe that any soldier who has been exposed, upon returning to camp, shall at once report at the hospital, where he is given a local treatment with silver salts or potassium permanganate and calomel preparations.

3. Any soldier developing a venereal disease acquired after enlisting is punished, unless the record shows that he was treated at the hospital subsequent to exposure. Punishment is for disobedience of rules and not for having a venereal disease.

4. Venereal disease is reportable.

Dispensaries and hospitals for veneral diseases are provided.

6. Laboratory facilities are provided for diagnosis of venereal disease.

7. Men excused from duty on account of venereal disease lose their pay during the period of disability and also have to make up time lost.

8. The men are taught the facts concerning venereal disease by lectures and pamphlets.

9. Prostitutes are kept off the reservation and as far as possible from its bounds

Which of these can be made use of by a free community?

The Use of the Preventive Packet.

This is not a measure which should come or can come under the control of a health department. Increased use of it must take care of itself. I expect within a few years to see vending machines employed for the sale of preventive packets.

I am inclined to think that the first step to be taken by communities will be to offer diagnostic laboratory facilities to patients suffering from venereal disease. Such facilities should consist of equipment to make a dark field examination for spirochetes; to make microscopic examination for gonococci; to make Wasserman's and probably also complement fixation tests.

A system of reporting will grow out of a laboratory system. The reporting to begin with will have even more difficulties than the reporting of tuberculosis. Most of us will recall how impossible seemed the reporting of tuberculosis a decade ago, and how many able sanitarians there were who opposed reporting of tuberculosis because they thought it certain to fail.

In a relatively recent report of the Chicago Health Department this appears: "The subject of the notification of consumption has received the consideration of the department, but without arriving at a conclusion favoring its adoption." This was less than 15 years ago.

If you will consult the weekly bulletin of the New York Health Department you will note that, though reporting of veneral disease was but recently begun, the total number of cases reported averages approximately five hundred a week.

Probably not more than a single disease—pulmonary tuberculosis—leads the venereal disease group in total number of cases reported.

The number of cases of venereal disease reported each week in the bulletin would indicate that the total number reported for 1915 would be about 25,000. If Banks' figures apply to New York, the number infected in a year in that city is about 125,000. This is not complete reporting, but what disease is completely reported.

If you remember, Hill's report on an intensive study of the school population of London, Ontario, made a few years ago, you know that measles and scarlet fever are not always reported.

In fact, venereal disease is reported in New York City almost as well as is measles in fairly well governed cities.

New York has demonstrated the feasibility of requiring reports of venereal disease. Just now that department is endeavoring to secure records of venereal disease and alcohol as contributing factors to deaths. This will prove a more baffling task.

The New York City ordinance is as follows:

"Sec. 88. Duty of superintendents of hospitals and dispensaries, and of physicians, to report cases of venereal disease. It shall be the duty of the manager, superintendent or person in charge of any correctional institution, and of every public or private hospital, dispensary, elinic, asylum or charitable institution in the City of New York to promptly report to the Department of Health the name or initials, together with the sex, age, marital state and address, of every occupant or inmate thereof or person treated therein, affected with syphilis or gonorrhoea; and it shall be the duty of every physician in the said city to promptly make a similar report to the Department of Health relative to any person found by such physician to be affected with syphilis or gonorrhoea. All reports made in accordance with the provisions of this section, and all records of clinical or laboratory examinations indicating the presence of syphilis or gonorrhoea, shall be regarded as confidential and shall not be open to inspection by the public or by any person other than the official custodian of such reports or records in the Department of Health, the Commissioner of Health, and such other persons as may be authorized by law to inspect such reports or records, nor shall the custodian of any such report or record, the said Commissioner of Health, or any such other person divulge any part of any such report or record so as to disclose the identity of the person to whom it relates."

A recent law in Vermont reads as follows:

"A person who, knowing himself to be infected with gonorrhoea or syphilis marries, shall be fined not more than \$500 or imprisoned in the house of correction for not more than two years.

"A person who, while infected with gonorrhoea or syphilis, has sexual intercourse shall be fined not more than \$500 or imprisoned in the house of correction for not more than one year. "A physician who knows or has reason to believe that a person whom he treats or prescribes for is infected with either gonorrhoea or syphilis, shall immediately report the name, address, age and sex of such person to the secretary of the State Board of Health, for which report he shall receive the sum of 25 cents, to be paid by the State Board of Health. A physician who fails to make such report shall be fined not more than \$200.

"The State Board of Health shall make and enforce such rules and regulations for the quarantining and treatment of cases of gonorrhoea and syphilis reported to it as may be deemed necessary for the protection of the public. Sand board shall not disclose the names or addresses of persons reported or treated to any person other than a prosecuting officer or in court on prosecution under this act.

"The sum of \$1,000 is annually appropriated for earrying out the provisions of

this act."

A proper function of a health department is provision for the cure of those suffering from various forms of contagion. This includes venereal disease. cities, particularly cities with a segregated and specially taxed vice system, this takes the form of special hospitals. York has been much wiser in deeming the dispensary the better place to begin. They begun with diagnosis and general counsel dispensaries. Simultaneously, they began an effort to standardize the service given in the venereal disease departments of the existing dispensaries. They may be able to force the existing dispensaries to meet those standards, or they may, in time, establish venereal disease dispensaries.

A venereal disease dispensary, established by the Chicago Health Department at Iroquois Hospital, has been discontinued. I am sure that in time it will be re-estab-

lished.

I understand that in Canada the Government can void a patent and issue a license to manufacture the patented article to an applicant or applicants; or manufacture any patented article the patent for which has been voided, if it sees fit. Under

your law, your Government has the right to manufacture salvarsan and neosalvarsan or to license others to do so.

Would it not be feasible for some Canadian city, for instance, Toronto, to undertake to manufacture these remedies in its health department laboratories, as has been done by so many departments of health in the case of antitoxins and vaccines, using the product in a dispensary system and supplying private practitioners and outsiders if it be found commercially practicable.

I do not think separate hospitals for

venereal diseases are advisable.

It lies within the functions of a health department to educate the people as to venereal disease. A portion of this education can be carried on directly by the health department. A very good method is by placing stickers in urinals and other places demonstrated as valuable for the purpose of quacks. These stickers should state: (a) The gravity of venereal infections; (b) methods of diagnosis; (c) fallacy of quick cures; (d) need of complete cure; (e) directory of places where treatment can be had.

They can do effective work indirectly by persuading the newspapers to print articles about venereal diseases By such education through the newspapers quack doctors in time will find it impossible to live, drug store prescribing for venereal disease will end, and the sale of patent medicines for venereal diseases will cease.

Through public education alone can these results be accomplished. Therefore, a health department should stimulate newspapers to undertake education of the

public as to venereal diseases.

Under certain circumstances health departments can and should placard veneral disease. It was the placarding of a few houses of prostitution for veneral disease in Chicago in 1909 which started the clean-up which abolished segregation of vice as a municipal policy.

And finally it is the duty of the health officials, ex-officio or in their individual capacities, to participate in all movements

for the repression of prostitution.

Note.—C. S. Banks, Public Health Service Report, Vol 30, No. 9; Stillians, A. W., N. Y. Med. Journ., July 17, 1915; Blaschko, quoted by White, Medical Magazine, May, 1914; Donath, see above; Reasoner; Military Surgeon, 1910, pp. 189; Bartlett, quoted by Nichols, J.A., MA., 1914, lxii, pp. 1525; Collie, British Med. Journ. 1914, pp. 285; Fournier, Special Report, 1899.

THE MEDICAL PROFESSION OF ONTARIO

VERSUS

IRREGULAR PRACTITIONERS

By Dr. J. W. S. McCULLOUGH

Chief Officer, Provincial Board of Health

HAVE the honour to present the views of the Provincial Board of Health and of the Department of the Registrar General upon this subject.

These are as follows:

 The standard of medical education should be maintained and with the advance of scientific knowledge increased.

(2) Those entering upon the study of medicine should have a good preliminary education, equal at least to honour matriculation.

(3) The course of study should embrace at least 5 years of nine months each.

(4) Since it is admitted that the fundamental principles of medicine embrace a thorough knowledge of anatomy, physiology, biology, physiological chemistry, bacteriology, pathology, diagnosis as well as clinical experience these subjects must be included in the course of study no matter what form of treatment any physician desires to pursue.

physician desires to pursue.

(5) There should be but one standard of qualification for those who desire a

provincial license.

(6) No one should be allowed to practise medicine in any shape or form unless he has pursued the required course of study and passed the prescribed examinations.

The licensing of physicians by the State is designed for the protection of the public against fraud and quackery and should be a guarantee, in so far as it can be, that he who calls himself a doctor and sets out to treat disease is properly equipped for the work he undertakes.

There is plenty of evidence that those in the province now outside the profession but who desire to enter it by an easy and inexpensive route have not received the

qualification already referred to. The schools where osteopathy, manutherapy, chiropractic and other creeds are taught exist only in the United States. There are none in Europe. The course of study is of the poorest character. It is described in the reports of the Carnegie Foundation* Referring to the chiropractics, the mechanotherapists and others the writer of the report says: "they are unconscionable quacks whose printed advertisements are tissues of exaggerations, pretense and misrepresentation of the most unqualifiedly mercenary character. The public prosecutor and the grand jury are the proper agencies for dealing with them." Of the osteopathic schools he says "The eight osteopathic schools fairly reek with commercialism. Their catalogues are a mass of hysterical exaggerations alike of the earning and of the curative power of osteopathy, etc." A vear or two ago I took the trouble to verify the Carnegie reports in reference to these institutions by securing catalogues from all colleges described in Bulletin No. 4. In addition I asked how a young man of limited means and education might hope to qualify. The replies confirmed and more than confirmed the statements made in the Carnegie Reports which I commend for your consideration.

I understand that these parties desire that those now practising in the Province shall be licensed, and that in the future the regular standard of qualification be imposed. A modest request truly! What in my opinion should be demanded of them is—that all these individuals pass the qualification required of every physician, then that they may use any form of treatment they wish.

If obviously untrained persons are allowed to enter the medical profession in the easy manner they desire it will be a sorry day for the people of this Province. The two Departments which I have the honour to represent have charge of the public health work and of the tabulation of vital statistics in the Province.

The most important phase of medicine do-day is the prevention of disease. Prevention of disease is absolutely dependent upon a correct knowledge of the fundamental medical sciences. Unless one can correctly diagnose disease, constant mistakes will be made. Nowhere is this more true or more unfortunate than in connection with communicable diseases. Trained medical men sometimes makes mistakes—how much more likely is this to happen the untrained man. Closely related to diagnosis is clinical experience, only to be secured by the actual observation and handling of cases seen in general and isolation hospitals. How disastrous it is to fail to make an early diagnosis in a case of diphtheria, or the diagnosis made, to neglect the use of diphtheria antitoxin. Yet the medical sectarian and the drugless physician have not the education and training to make the diagnosis and, since they deny the value of antitoxin, which has reduced the death rate from this disease nearly 50%, they allow the young patient to die. Many examples of this have been seen in this city in recent years.

Who but well trained physicians have discovered and given to the world the casues of tuberculosis, of malaria, of yellow fever, of typhoid fever, of cholera, of the plague, of typhus fever, of Malta fever, as well as of many others. The attempt at construction of the Panama Canal by the French was a failure because they could not overcome the ravages of malaria and yellow This great work was successfully carried out after the cause of these diseases had been discovered. In the possession of this knowledge Colonel Gorgas made the Panama Zone as safe to live in as the City of Toronto, the healthiest city in the world, Who but a physician gave the world a preventive against small pox so that this disease which in confluent form is ravaging at the present moment the Islands of the Eastern Archipelago is unknown in the Phillipines which were thoroughly vaccinated under the military rule of the United States. The Provincial Board of Health by providing free preventive treatment of children and other persons bitten by rabid dogs has been able to prevent the death from hydrophobia of some 400 citizens of the Province in the last five years.

In the Boer war of fifteen years ago in an army of 328,241, fourteen thousand six hundred and twenty-six were inoculated against typhoid fever. Although the preventive treatment of this disease was then in its infancy there were but one hundred and sixty-three deaths among the inoculated men, while in those not inoculated there were 48.754 cases of typhoid with 6,991 deaths. Contrast this with our experience in the present war. Up to May last in the British Expeditionary Force in France of about 750,000 men 90% of whom were inoculated there were only 807 cases with 128 deaths. and of these but 22 in men inoculated against typhoid.

The water at the Niagara Camp where the troops of this division were quartered for the last six months is perhaps the worst in Canada, carrying as it does the sewage of Buffalo and other towns up the river where the presence of typhoid is almost constant. Yet in the 20,000 men who passed through the camp in the period mentioned not a single case of typhoid was traceable to infection in the camp. This was due not only to the inoculation of the men against the disease but also to preventive measures taken to purify the water and by daily and hourly checking of water samples by means of a bacteriological laboratory, by careful sanitary supervision, by the destruction of flies, and by the boiling of the dishes and other common utensils used by the

Preventive medicine has reduced the death rate from tuberculosis in the Province from 148 per 100,000 to 85 per 100,000 in the last 10 years. It has served within the last three years to reduce the death rate amongst babies under one year from 117 per 1.000 births to 103. It will do more than this if the standard of medical education in the Province is maintained but if, on the other hand, unqualified charlatans who treat every disease by message or by re-adjustment of the spinal vertebrae or by mechanical exercise or by prayer, present or absent, without the aid which God has given to mankind, are allowed to legally carry on their propaganda, I look forward to a serious setback to the prevention of disease amongst our people.

Every single effort made in the prevention of disease among mankind and animals, every discovery which has aided in the length and comfort of men's lives, the triumphs of present day surgery, the conserving of our armies from disease, the rescue of wounded soldiers from the inevitable death of their comrades of forty or fifty years ago have been due to a sound knowledge of the principles of medical The well trained physician desscience. pises nothing which may save his patient from disease and its consequences, he proves all things, holding fast to that which is good. Is there any reason then why we should do anything which will expose the public to the practice of the unqualified man? Is there any good reason why one man should become a legally qualified physician by a less arduous course of study than another? Would it not be the height of folly to admit to the ranks of the legal profession laborers, mechanics, street car operators or other uneducated men, excellent for their own work but totally unfitted to act as legal advisors. With a proper education such men might become first-rate lawyers or grace the bench. Similarly, would it not be a greater folly to allow such men to trifle with human life?

Public health and preventive medicine have a very close relation to vital statistics; the latter will become absolutely useless if unqualified men are allowed to treat general disease and sign death certificates.

In common with the whole profession the Board is much gratified at the prospects of a thorough investigation which you are carrying on in reference to this question. We feel that the subject is safe in your hands, that you will give it the fullest consideration and that the report will in your wisdom, be entirely in the interests of the people of this Province.

Dr. G. Sterling Ryerson's many friends in the medical profession will be pleased to learn that he has returned from the front and has resumed practice (Eye and Ear).

^{*}Bulletin No. IV.—United States and Canada; Part I., pp. 156, 166; Part II., pp. 185, 320. Bulletin No. V., Europe, pp. 308, 316.

DEFECTIVE CHILDREN

By Mrs. KERR

THE message I have for you to-day concerns a class of children hitherto misunderstood and on whom methods of education have been forced which were hopelessly wrong and without result. We gave them our sympathy but should have given them our most careful study.

The Unusual Child

The complaint is often made that children do not reach the Jr. II. class until they are 9 or 10 years old, and the question is asked—What have they been doing? or what have we been doing? Why should they remain in the 1st book grades for such a length of time?

The result of recent investigation by our chief Inspector shows there are between 250 and 300 of these children throughout our city.

The question comes back to us again, why?

We are compelled to answer:

1st—Too many in our classes to find out the individual need.

2nd—There are children there who never should have been entered without careful study and consideration.

With these latter I am to deal this morning. There are two reasons why they shouldn't be there—

1st—They retard the progress of other children by taking up valuable and expensive time with no appreciable results to themselves.

2nd—They are not able to take advantage of the instruction given.

Who are these children?

That this class really exists has been recognized by the Ontario Government by an act passed in April, 1914, This act is fully given in Dr. McMurchy's excellent work on Organization and Management of Auxiliary Classes, which you will be able to procure from your principal. The main provision of this act is that a school board may establish classes for children who for any physical or mental reason are unable to take advantage of the ordinary Public

School Course. These children all spend some time with us—are gradually pushed on until they become almost a fixture in an intermediate class—there hopelessly struggling against great odds, and the teachers and pupils badly handicapped by their presence.

As we probably have these children for a longer time than others, it is time we made a survey of the situation preparatory to forming these Auxiliary Classes when the time arrives.

These may be established under the act for foreigners: Handicapped by language, manners, habits—better be taught by an expert who could more rapidly pass them on as they are often possessed of mature ability; Japanese, Chinese, Russian, Italian, Semi-deaf, semi-blind, physically defective, crippled, some so much so that they have to be carried or have to climb long flights of stairs on their knees.

The ordinary class room is certainly not adequate in furniture, situation or toilet accommodation for this unfortunate class which is likely to be much larger, as those reach school age who in the last few years have been victims of that dread disease infantile paralysis. They are even reaching us now and are pitiful objects as they try to climb the stairs. Many crippled children never reach school at all as they are confined to chairs.

Delicate children—from long sicknesses, epileptics, nervous diseases, etc., Anaemic and Tubercular children, needing the open air treatment all the year instead of only part as now.

But most important of all is the class fortunately not a very large one at present who will never attain mental age of say from 8 to 11 years. These constitute the most serious handicap and are the greatest problem for us to consider. The development and care of this class is not the greatest work for a teacher but in order to give her a chance to do her best work for the largest and most important class of children, the normal, these feebleminded ones should be put in a class by themselves and supplied

with activities suited to their circumscribed abilities giving them opportunities so far as lies in our power to be helpful members of their limited community—"Nature has put the feeble-minded class by himself and we had better take the hint."—They may be made nearly self-supporting under wise supervision and may have a happy and useful life at a much smaller expense to the State than they now are—say 10 years in school, at say \$37.50—court expenses etc. That in money is only a fraction of the real cost to teachers and associates in his long sojourn in the various grades.

Think over your past experiences. Who were your problems?

What has become of them?

What the result of all your patient efforts on their behalf?

All they ever acquired at school has been of so little consequence that it has not helped them to become useful or even happy.

Mental defectives cannot be taught, can only be trained by repetition, but should be started young. Their motor control is poor. They can only imitate, they can't initiate. Their sense of relationship is poor as also their sense of reasoning and judgment. They do not readily connect up ideas.

They develop self-respect by learning to do something. We must remember that research has proven that no matter what education has been offered to them it has never been able to bring them to a normal standard. A mind cannot be developed where the brain is deficient, as well try to grow a foot or a hand on a child born without one.

You can well see that these children cannot be made happy members of a class where everyone else can do better than they can

and they are always a drag.

Hertofore we have given them an assumed place by bolstering them up with our sympathy but they were of no real value to the life of the community in which they were placed. Next, if they are ever to attain a measure of efficiency it must be through the development of motor impulses No adequate provision for which is now given in our schools; therefore, the logical preparation for their education should include-1st, a teacher of their own-equipped sympathetically, scientifically and executively to meet their needs; 2nd, a room of their own equipped and furnished so efficiently that there would be no question regarding the standing of the pupils in it,

either in the minds of the general teaching staff or those of the rest of the children in the school.

Admission to this Auxiliary class should be deemed a privilege and treated as such by all concerned,

There is a serious problem confronting the people of Ontario to-day, and we as teachers must be prepared to do our part in

the solution of it.

About two or three in every thousand are defective—this is a greater proportion than we had in the last generation for in this humane age we are more careful of the unfortunate and they grow to maturity, thus making the menace the greater. There is every probability that with this war devastating the flower of our manhood, and this class reproducing its own unfortunate kind, we shall hereafter have a very much higher percentage of feeble mindedness, unless we who understand the situation instead of saying "Why doesn't somebody do something?" do something ourselves.

What should be done?

1st—The children of our classes should be better classified. We should study them and report to the authorities those whom we feel are not up to the mental age for the work. This can be definitely found out as there is a class held once a week at the General Hospital and cases may be referred there—where careful examination and tests are made by trained physicians and psychologists until such time as our Board of Education establishes a class of their own for the consideration of such cases.

Having satisfied ourselves that they are lacking we should provide them with manual occupations and stop trying to teach them to read—it can't be done—13 little boys were chosen from an institution as a class for experimental and practice work during the session of the Summer school in Auxiliary class work of this year. The biographies of these were given and all were mentally defective-some worse than others. A Canadian teacher who was in charge of an Auxiliary class in New York took these boys in hand, gave them manual work with the help of the students. They made backs for brushes at the benches, then made the brushes; Prepared a large box and made it into a doll's house; learned to weave in frames with raffia; learned to make baskets of various shapes and sizes; learned to lace their boots; sewed cards; modelled in plasticine. These boys had been the problem in any class they had ever been in. Maybe yours had been persistent truants, were destructive, unruly and unmanageable, and often fought with any with whom they came in contact.

This Summer Class was to be in session from 9 to 12 a.m., afternoons for play; but when the teacher returned at one o-clock to prepare work, the boys were always there begging to be taken in to work and had to be compelled to leave at 4 o'clock. There were great regrets when the school closed at the end of the term. The practice teachers who came in contact with them from day to day were amazed when they learned their history—their conduct in the workroom bore so little resemblance to their former reputation.

AUXILIARY CLASSES IN THE PUBLIC SCHOOLS

By Miss BLACKWELL

IT is with some diffidence that I venture to appear before so august a body as the teachers of the Sr. II. grade. Teachers I am aware are critical listeners, so if I wander from my text, or forget to dot my i's or cross my t's, I ask your forbearance as I endeavour to tell you a little about our study of the backward child in connection with the summer course for teachers in Auxiliary Classes held in University School last vacation.

As a rule we deprecate summer schools. They bore and weary us. After the year's work our energy is exhausted, our vitality is low, our nerves are worn threadbare, and the only thing that holds attraction for us is the realization that now, unlike Tommy, we do not have to go to school, but can stay out in the fields and play all day long.

But this summer school was an exception. Those of the students who entered with the thought of dropping out after a while if they felt like it, speedily lost all thought of doing so as they became interested in the work in hand. A great light shone round about them, old problems vanished, others were solved, while still others grew attractive in one's eagerness to obtain a solution.

In the long list of our school problems there is none more insistent or difficult than that of the backward child. We, as teachers, know that he is an incubus to the class. A hidebound educational system leaves no time for cultivating, individually, such unproductive soil, so he sits in one class until length of limb makes it necessary to promote him to a room where the seats are higher, he stays there till he has added another cubit to his stature and is then passed on to the next grade and so on until he has reached the age of fourteen—the age of emancipation.

Retardation may be the result of causes which are easily traced, such as irregularity of attendance, too frequent change of schools, loss of interest, ill health, nervousness, shyness, natural slowness, as Dr. MacMurchy puts it, "the mental power is good enought but the mental field is hard to work."

It is sometimes due to causes which are not so obvious, namely, physical conditions which may be wholly or partially removed, for example, defects of sight and hearing, adenoid growths in the nose and throat, word-blindness, letter-blindness, lack of proper sleep and nutrition, flat foot, curvature of the spine, etc.

When medical inspection became general in New York, a solution of the problem of backwardness was eagerly hoped for, teachers and school superintendents looked for the elimination of retardation when physical defects were corrected. This however was not the case. Certain children were still unable to make progress. They did not profit by the instruction given in ordinary classes, because of peculiarities in their

mental make-up, Some of them were just on the borderline between the normal and the feeble-minded and as one writer remarks, the way in which the mental short comings of such are treated, may determine whether they join ultimately, one class or the other. Or, to put it in another way, the backward child must be brought up to the mark, otherwise he will grow to maturity as an incompetent or as a potential criminal. The hope of the backward child lies in the teacher, but we know from experience other pupils in the room demanding attention.

The saddest and most important cause of backwardness is mental defect because for the mental defective there is no cure. Our greatest scientists, our most skilful surgeons, our most learned physicians can do nothing to improve his case. There is something lacking in his brain substance which must always be lacking because no

power can supply it.

Subnormal people are seldom found in savage tribes, for as the fowls in a barnyard will fall upon the maimed or delicate member and peck it to death, so the savages, instinctively recognizing that some condition exists which will prevent the affected one from taking his proper place in the tribe, put an end to his existence. Greeks are said to owe their intellectual superiority largely to the fact that subnormal people were not allowed to exist. It was characteristic of the race, however, that they were not deliberately exterminated, instead, when discovered, they were placed upon mount Olympus and left in care of the Gods who were trusted to do whatever was necessary. In other countries also, they were comparatively rare in early times. Periods of storm and stress frequent wars, feudalism, all tended to the extermination of the unfit. It has remained for the humanitarianism of the past and present centuries to foster them in homes and shelters and through a dangerous lack of knowledge, to accord to them the freedom of action which should be extended only to responsible beings.

In using the term "Mental Defective," we do not refer to the idiot or the imbecile, but to those belonging to the higher grades of feeble-minded. The Royal College of Physicians defines a high-grade mental defective as one who is incapable of competing on equal terms with his normal fellows

or of managing himself and his affairs with ordinary prudence. Our Ontario definition is somewhat similar: here he is one who is incapable at maturity, of so adapting himself to his environment or to the requirements of the community as to maintain existence independent of external support. Dr. MacMurchy lays aside all these highsounding phrases and defines him as one who can never make a home for himself.

We may think that because this class is only slightly defective that we need not be concerned about them. Binet the great French authority, in speaking of feeble-mindedness in general says "The diagnosis of the high-grade feeble-minded is the most important and most difficult of all. It is the high-grade feeble-minded who constitute the majority, it is the high-grade feeble-minded that we must learn to recognize in the schools where they are confounded with normals, it is they who cause the greatest difficulty in the work of education."

Perhaps with hasty judgment we argue that there are not many such among our pupils. An acquaintance of mine remarked one day in talking along these lines, that she had had a number of very backward pupils in her classes from time to time but did not think she had ever had a mental defective. If the facts were known she probably had had several but did not recognize them. Two years ago I was housed with a picked-up Junior secondclass, in a portable. There were children to right of me, to left of me, in front of me and behind me, for we are in a growing section and there is never enough room. Inspector Elliott came in one day and after talking a while and looking around, he suddenly remarked, "You have four mental defectives in your room," I said "Look behind you and you'll find another," for I felt quite safe in including him if the others were defective. Mr. Elliott glanced over the group of children and instantly detected the one I had in mind. These children were not abnormal in any way. I didn't know they were defective. I knew they were exceedingly backward and that I couldn't get anything into their heads permanently. He, with a wider knowledge was able to classify them by their appearance. Of course those of us who have come into contact with Mr. Elliott, know that he has remarkably keen perception.

In 1910 one hundred and seventeen backward children were reported for examination by the teachers of a number of Toronto schools. Of these 52, almost half, were found to be mentally defective. Last January Chief Inspector Cowley presented a special report in which he stated that there are apparently between 250 and 300 mentally defective pupils in our schools. These pupils are in our classes. If anyone passes a remark about the backwardness of such a one we simply say "Oh he's a special case, can't learn anything," the listener nods in an indifferent way and the incident is closed. But the backward child grows up and becomes the backward man, backward in everything that makes for good citizenship, but forward, alas, in the qualities which tend to the lowering of social standards. Quoting again from Dr. MacMurchy, "The problem of the schoolroom reappears as the problem of the tax-payer, the magistrate, the gaoler and the philanthropist, while one-third of our revenue is absorbed by penal and charitable institutions." What is the cause of mental defect? Recent researches have shown that in about 75 per cent of mental defectives, the cause is hereditary, descending from one or both of the parents or from their direct ancestors. The history of the Kallikak Family is a case in point.

During the Revolutionary War a young American officer of good family was quartered at a village inn. While there, he departed from the paths of rectitude and lived with a feeble-minded girl. The fruit of this wrong-doing was a son, apparently normal, but with recessive feeble-mindedness. His mother, though feeble-minded, had sense enough to give him his father's name, though he is known to us by the fictitious name of Martin Kallikak. He married a woman of mentality similar to his own and from them were descended a long line of drunkards, paupers and people of notoriously bad lives. After the war the young officer returned home and married a girl of family as good as his own. Their posterity was a succession of governors, statesmen, judges and brilliant professional. The two families lived in the same state both being unconscious of the relationship, though members of the one family were sometimes servants of the other. One of the surviving members of Martin Kallikak's family, Deborah Kallikak, is now an inmate of the institution at Vinelands, New Jersey, and it was through an effort on the part of the authorities there to discover her ancestors, that their history has been revealed.

Dr. Goddard of that institution says "One great point of attack for the solution of crime is the problem of feeble-mindedness. There is no such thing as hereditary criminals, it is hereditary feeble-mindedness that accounts for the conditions. Criminals are not born, they are made, and probably 50% of all criminals are mentally defective. In a startlingly large percentage of cases, the drunkards, the prostitutes, the paupers, the ne'er do wells, the truants, are such, because being of low mentality they lack intelligence, judgment, and will power to resist the Feeble-mindedness has not been discovered to be such a powerful factor in the social problems because it has not been understood. Even yet in the popular mind it is synonymous with idiocy or imbecility, Both our method of treatment and our attitude towards crime will be changed when we discover how much of the dilinquency is due to responsibility."

Then since the defective child cannot be cured of his defect, and since it is dangerous to neglect him, what shall be done with him? An American authority has said, "Nature has put the mental defective in a class by himself, we had better take the hint." And this for a three fold reason; as long as these subnornal children remain in our ordinary classes, the progress of the great mass of normal children is impeded, and the highest results can never be reached with them. Also, large sums of money are being expended annually for their so-called education with little or no result. Further they must be permanently segregated to prevent their increase. It has been estimated that if this plan were put into operation now, that by the year 1950, society, in our country, would be free from this menace. As it is, each succeeding generation swells the number of shiftless and vicious incompetents. This fact, coupled with the present crisis, when the flower of our nation are giving their lives for the defence of their country, forces us to face the possibility of the deterioration of our Canadian manhood.

In those countries where they have taken the hint and have separated the subnormal child from his normal class-mates, the solution of the problem has been found. The mental defective cannot be taught very much, since the highest mentality he ever reaches is that belonging to the age of about 11, but he can be trained by proper methods to do a great deal and under proper supervision, in an institution, may be made almost, if not wholly, self-supporting. Think of your backward pupils in the past. Is it not true that in the majority of cases they were interested and skilful in the manual training class. The dullest boy I ever tried to teach could produce the finest specimens of work in that line, tables, trays, houses and boxes beautifully cut and fitted together. I spoke to the school doctor and tried to get him admitted to Miss Carruthers' class but it was just a short time before the class was discontinued, and nothing was done. He left me at the age of 14, unable, I was ashamed to say, to read or to write a sentence. The feeling of shame has passed away, because now I know that no teacher could teach him to do those things. Nature had debarred him from ever acquiring that power.

In connection with our summer course we did practical work with a class of boys in one of our city institutions, some of whom were sub-normal, and it was surprising to see, under the training of qualified teacher what splendid results were obtained by these boys in weaving, basketry, wood-work,

brush-making, etc.

The girl Deborah Kallikak of whom I have just spoken was received into the Vinelands Institution at the age of 8 years. After 14 years of residence there, after much teaching and training they reported that she was a poor reader and could neither add nor subtract except when it was a question of concrete objects connected with her daily life. For example in setting a table she could place the right number of plates at the head of the table if she knew the people who were going to sit down to it, but if she were told to set the table for 6 or 8 people as the case might be, she would fail in making the correct count. But she had been trained to use the sewing machine, to cook and to do practically everything about the house. Also to make chairs, tables, boxes, and other articles, doing her own measuring, to embroider dresses and make them up, to carve wood and make baskets, to play the cornet and to read music at sight. Thus, under supervision, she was able to assist materially in her own support. She had no noticeable defect, yet Dr. Goddard says of her, "She is a typical example of the high-grade feeble-minded person, the kind of girl or woman that fills our reformatories. To-day if she were to leave

the institution, she would at once become a prey to the designs of evil men or evil women, because she has no power of control."

But how shall we deal with the subnormal of Ontario and especially of our own Toronto? The government has at last provided a way. Many of us remember the Special Classes Act of 1912 under which there were several classes established in this city. This was found to be insufficient so was repealed and the Auxiliary Classes Act was passed in 1914. By this act school-boards are authorized to establish and conduct classes for children who, from any physical or mental cause are unable to take proper advantage of the ordinary public or separate school courses. It is interesting to note just here, that New York has eight different types of Auxiliary classes:

Ungraded classes for meutally defective children; Special classes for Deaf children; for Blind and semi-blind children; for Physically defective children; Open-air classes for Delicate children; classes for Foreign children; classes for children who must soon go to work, and Classes for over-age pupils.

Though we might conduct nearly all these types of classes to good advantage here in Toronto, there are several of which we are especially in need, The necessity for classes for mentally defective children has already been spoken of. We need them for physically defective children also. In my classroom is a little girl of 10 whose legs are encased in irons from her feet to above her knees. With the assistance of a schoolmate, and by clinging to the balustrade she drags herself up to and down from the 3rd flat. The probability is that she will never be any stronger than she is now. Last term I had a little boy with partially withered limbs who pulled himself up and down by hanging on with hands to the iron-work of the staircase. For several terms we had a little cripple whose brother brought her to school in a go-cart and then carried her from the vestibule to her room. These cases might be multiplied, probably, by the number of schools in the city and even then the number obtained would not represent the total number of existing cases, since there are so many who are unable to go to school at all. With technical education now in our midst we could train these children in special classes to be self-supporting instead of being a burden to others all their lives.

The deaf likewise demand our consideration, those afflicted fellow beings who are shut out from the realm of sound and hence of speech with all the consequent disadvantages. Yet many of the disadvantages are removed and life for them is transformed when they learn lip reading and are taught to speak. Those who witnessed the oral demonstration by pupils from the Belleville institution at the Exhibition this year, know something of the wonders which can be accomplished along this line.

Already in Toronto we have our Forest school for delicate children. We have as well, one or two open air classes. There is an ungraded auxiliary class, also, in the school of which our esteemed president is principal. In the light of this latter fact may we not devoutly say of women principals, "may their tribe increase."

We have touched the edge of this wave of reform. The indications are that in the future, perhaps not far distant, we shall launch out into the deep. In this important work, Dr. MacMurchy, whom we shall hear tomorrow, is our path-finder, our lode-star, and if we follow the gleam, we shall help, at least a little, to better the condition of the country which is so dear to the heart of every true Canadian.





CHRISTMAS GREETINGS

It is difficult to feel merry while the weight of the Great War still presses so heavily on mind and spirit; but we can at least hold fast to the faith, that under Divine Providence a compensating Good will

vet supplant this terrible Evil.

Canada has suffered little in comparison with the European countries at war, and there are many evidences at present of increasing prosperity. This should and will add fuel to our ardor to assist still more effectively in support of the Motherland and of the Allies generally, in the Titanic struggle with German Militarism. The liberties won by our valiant forefathers in past centuries must be sustained in the interest of humanity and such unparalelled heroism be rewarded by a final and lasting victory.

The Public Health Journal, like many other publications, has had to battle, as bravely as possible, against the unforeseen conditions brought about by the war, and our sincere thanks are due to all subscribers and contributors who have so promptly res-

ponded to our call.

Many letters have come to the office expressive of appreciation of the many

excellent articles published by the Journal during the year, and they have all been gratefully received. Even editors occasionly like appreciation.

At first a few demurred at the addition of purely literary articles but such objections seem to have disappeared. The literary section has made the Journal more popular among general readers, and it seems to be appealing more and more to the members of the Medical Profession. The articles on "Canadian Poets" have been a revelation to many, and are now eagerly awaited; "Public Welfare," a page from the pen of Dr. Albert D. Watson, a Canadian poet of distinction, is read with interest and profit, as are the carefully written articles on important themes by Miss Florence Withrow; and "Arts and Artists in Canada," a monthly contribution by Katherine Hale, one of Canada's most brilliant literary women, is a new department which we are sure cannot fail to be appreciated by all.

Christmas greetings to every reader. The children at least should be made happy, and it is the duty of their elders to sustain their hearts by high courage and loyal

confidence.



MUSCOVITE AND ROMANOV TSARS

By FLORENCE WITHROW

THE Romanov dynasty, which still rules in Russia, began with Michael Romanov, 1613, but there were Muscovite Tsars long before, hence we shall briefly sketch Russia's history from earliest times down through the Tsars of Moscow and of Petrograd to the

present Nicholas III.

The origin of the Russian is not clearly known. His country corresponds in part to Seythia of the ancient world, a terra incognita. of fabulous area. Some ethnologists incline to consider him of Mongolian descent, but others claim he is distinctly Aryan, and that among the Seythians were various Slavonic tribes which were more agricultural than nomadic.

The derivation of the name Russia is also obscure, although it is thought to mean "rower or sea-farer," such as the Finnish "ruotsi" used at the present

day.

The early history of this vast land is gleaned chiefly from old sages and legends which tell of Scandinavian and of Tartar invasions and which deal with the epoch of tribal rule in a pagan cycle.

The traditional founder of the Russian Empire is given as Rurik, the hardy chief of a tribe called Rus, who was invited by some Finns and Slavs to be their leader 862. As a result, for nearly 200 years his descendants exercised autocratic power. Rurik left his cousin Oleg (879-912) as ruler, since his son Igor was only 4 years old. Oleg was a mighty warrior, who vanquished the Khagars, Tartars and Magyars, and made the captured principality of Kiev his capital. (912-45), the son of Rurik, followed and continued the wars of conquest ..

Old chronicles describe Russian attacks on Constantinople by this warring chief who with 900 ships in the Bosphorus retired only on being handsomely paid off. Olga, his wife, called the forerunner of Christianity in pagan Russia, long

since a Russian saint, received baptism in the Byzantine capital, 957. Her three grandsons became the warrior chiefs of their tribes and repulsed various Mongolian invasions. The youngest, Vladimir (972-1015), became sole ruler, and by vigorous fighting added Red Russia (Galicia) to his dominions. He also was baptized in Constantinople (988), and accepting the Greek Christian faith, overthrew the heathen Slavonic gods. As the Christian sovereign of Russia he effected the conversion of the entire nation to Greek Catholicism, which ever since has been the dominant faith, and in a very real sense has Russia maintained Christianity against Islamism and other Oriental religions.

Yaroslav (1019-54) succeeded his father after a fraticidal war, in which he murdered three of his brothers. He was the first Russian legislator, with his capital at Kiev (Moscow not yet founded), where to this day in the hoary cathedral, repose the bones of his illustrious sire. The anniversary of the conversion of Vladimir the Great is celebrated annually in holy Kiev with sacred rites and gorgeous ceremony, by a people fanatically devoted to the faith which he established, for in no country are the inhabitants more devout

than are Russian Christians.

Yaroslav divided the Empire among his four sons, which caused constant feuds, until finally, civil war changed the monarchy into a confederacy. The power of the nation was thus broken, and large portions were wrested by the Lithuanians, Poles, Swedes and Teutonic Knights.

The descendants of Yaroslav (with impossible names, having an interminable succession of consonants, which we shall deliver the reader from pronouncing), reigned over different principalities until the time of Monomakh, who married the daughter of our Saxon Harold, killed at Hastings. He was a just ruler and may be compared to Alfred the Great in his

chronicle-writing propensities. His old book of Instructions is quaint and homely in device and advice and gives a most vivid picture of old-time Russia. After his day Kiev declined (1200) as the centre of Church and State and became eclipsed by Suzdal and Novgorod.

In 1224 occurred the terrible Mongolian invasion under Khan Temud Shin. who ravaged Russia and brought most of it under Mongol rule. So frightful were the murders and devastation that famine and pestilance quickly followed.-Alas! worse than the brute-beast is man when impassioned by the savagery of war! Novgorod remained semi-independent, but Kiev was taken, and on the Volga, Sarai was founded, where for two centuries Tartar sovereigns reigned over an Empire which at the end of the 13th century extended from the walls of China to the frontier of Poland, and from India to Siberia. Curious as it may seem, they embraced Islamism and formed various Khanates, among them the Crimea, which later became a dependency of Turkey.

The Russian princes were obliged to attend the Mongol Khans and do homage to the Tartar sovereigns in journeys to far distant Thibet. Practically no national Russian life was there at this gloomy period, and heavy was the tribute to the gorgeous Khans forced upon the grossly ignorant peasantry. But apart from taxes and homage the Mongol rule made no lasting impression on the Russian character, save that many Muscovite princes married Tartar women and thus orientalized the nobility of Moscow.* which city suddenly sprang into import-The barbaric splendor of the Russian Court, which still obtains, is directly attributable to this Oriental influence and also to Byzantine imitation.

One thing that flourished during these benighted days in spite of foreign supremacy, was the Russian monastery, where the monks busied themselves with a marvellous series of chronicles, which still afford the best light on those dark ages.

No sooner had Mongolian power subsided than Lithuanian (adjoining Poland) sovereigns assumed control with Vilna as their capital, but although pagan

they respected the orthodox religion and the internal government of their newly-acquired states. In 1386 their king married a princess of Poland and claimed with her certain provinces, but a large Polish element opposed this claim and placed themselves under a mighty warrior, Vitovt, who succeeded in forcing Luthuania to become an appanage of the crown of Poland, 1392. He also defeated the Teutonic Knights of Prussia and thus impeded German encroachments upon Slavonic soil.

The strength of Moscow grew as that of Kiev and Novgorod declined, and a line of Grand Dukes reigned with despotic power, beginning with Alexander Nevski (1247-63), who won signal victories over the Swedes, Livonians and Lithuanians on the river Neva, hence his name.

A series of Ivans (John) and Basils followed, all more or less tyrants and some of them bloodthirsty and eruel. Ivan I. (1328-40) was a fairly good ruler and greatly improved Moscow, by extending the massive towers and battlements of the Kremlin (from Kreml-citadel), and by building many churches. He caused the Metropolitan, the head of the Russian Church, to move from Kiev and to reside in Moscow.

Ivan II. (1353-59) was the first to style himself Prince of all the Russias, as he observed a stricter surveillance over the scattered provinces and conceived the idea of national unity.

Basil II. (1389-1425) also increased the power of the grand principality of Moscow by the incorporation of Nizhni Novgorod and Suzdal, and under his son Basil III. (1425-62) several other states were added. During the latter's reign the Metropolitan of Kiev, Isidore, attended the Council of Florence, 1439, and subscribed to the union of the Greek with the Latin Church, but this so incensed Basil that Isidore was banished. However, he escaped to Italy, where he died.

Ivan III. (1462-1505) succeeded his father. He was a man of colossal ambition and practically the founder of Russian autocracy, being the first to assume the title of Tsar, and with it the crest of the double-headed eagle, which he took along with his matrimonial alliance with Sophia, the niece of the Byzantine Emperor. Pope

Sixtus IV. approved of this union, as he hoped thereby to unite the Greek and Latin churches.

Ivan III. extended his territory by causing dissention in various principalities and by winning over factions for his own support. A portion of Siberia he annexed in 1499, but in Livonia, on the Baltic, he completely failed and was forced to conclude a fifty years' peace. Better success had he with Novgorod, the wealthiest commercial city of Russia, which was a member of the Hanseatic League of trading towns, and which had formed a free and independent republic. Ivan crushed its liberties and carried off its great bell, which to this day stands within the Kremlin in Moscow. To entirely break its commercial supremacy he confiscated the property of the merchants and put the foreign traders in chains. Thus was humiliated the once proud city of 400,000 inhabitants.

The Mongol Khans also suffered from this man's despotic determination, for he repudiated all allegiance to them, refused to pay tribute and repulsed their last attempt at invasion.

In this reign the first embassy from Germany came (1490), when the Emperor Maximilian sought in marriage a Russian princess, but, as his agent was not allowed to see the lady, since such high born damsels were kept in Oriental seclusion, Maximilian's suit was decorously withdrawn.

The second code of Russian law was the result of the mandates of Ivan III. By its dicta, punishment for most petty offences became more cruel than ever. Especially unjust was the treatment of Jews. For instance, if Jewish physicians, who were the great practisers of physic in those days, failed to effect a cure, they were punished by torture and death.

During Ivan III.'s reign the Kremlin was gorgeously embellished, by the rich decorations of the palaces and of the Metropolitan (Coronation) Church. An arsenal was established, and many bulbous towered buildings were erected, which to this day give Moscow so unique and bizarre an appearance.

Fearing the evils of a minority (infant grandson) Ivan bequeathed his throne to his second son Basil IV. (1505-33). An in-

teresting account of the brillance of his Court is given by the German ambassador Herberstein, who describes it as equal to that of any Eastern potentate. Basil's life was devoted largely to hunting and to beautifying his capital. He followed his father's policy of refusing to pay tribute to the Khans and completely routed the Tartars of Kazan.

Ivan IV., the Terrible, (1533-84) succeeded after the five years' guardianship of his Lithuanian mother. A curious compound was this strange man, who was so wanton in his cruelties and so unbridled in despotism. He resembled two characters in history, Henry VIII. and Louis XI., the former in his fondness for religious controversy and for many wives (7), the latter in his treacherous cruelty, craven cowardice and superstitious fear.

In this reign trade with England was first established. The rival Dutch also came along, which eaused Queen Elizabeth to seriously complain. Ivan sought to satisfy her complaint by killing the Dutch merchants in the public square and in other barbarous ways he endeavored to gain her good will, for he looked to her protection should his subjects expel him, but his actions were too brutal and bloody to please Queen Bess.

Another instance of his sanguinary propensities was the slaughter of 60,000 of the citizens of Novgorod simply because he hated their free spirit. The most exquisite tortures frequently accompanied his outrageous brutalities in the Red square, which are too horrible to depict. In a fit of passion he even did to death his own son and heir, after which frightful deed, filled with remorse, he expired in agony.

In spite of his manifold atrocities this Ivan the Terrible was a great ruler, who advanced Russia beyond any of his predecessors and extended its boundaries far into Siberia (named from town of Sibir) under the daring leadership of Yermak, a Cossaek free-booter. He made a commercial road to Archangel in the far north and subdued Kazan and Astrakhan in the south. He created a standing army and fortified the towns, established a printing press, instituted a new legal code, regulated affairs of the Church in the Book of One Hundred Chapters, embellished

Moscow with churches and fantastic towers and added to the magnificent treasures of the Kremlin.

This strangely enigmatic man left only two children, Feodore, aged 27, and Dimitri, an infant. The former married Irene, the sister of a powerful chief, Boris Godunov. Feodore was weak-minded and superstitious, and Irene was sickly, hence Boris saw only one impediment to the throne, the young Dimitri, whom he had removed to the town of Uglich, where the child died under mysterious circumstances 1591. Suspecting Boris of foul play the townsfolk of Uglich rose in a riot, whereupon Boris banished many chief citizens to Siberia, which had begun to be a convict settlement, and thither was sent the great bell, just as the bells of Novgorod and Pekov had been carried off to Moscow.

Boris further acted with a high hand in repulsing the Khan of the Crimea, but in this respect he did well in staying the repeated Tartar raids. He strengthened the fortifications of Moscow and built a harbor at Archangel, the notable port on the White sea in the Arctic ocean, which has been so valuable a point of ingress during

the present war.

As to the imbecile Feodore he was completely dominated by his powerful brother-in-law, who had also secretly poisoned his infant heir. Consequently on his death, 1598, Boris easily managed to have himself elected Tsar, thus ending a long line of Muscovite princes descended from Rurik.

Boris' first object on assuming sovereignty was to lessen the power of the nobles, to effect which, he ordered many executions. To the House of Romanov he showed special enmity, and compelled its head to become a monk. He also incarcerated one of its princesses with her child in a monastery, so fearful was he of having the crown wrested from him.

This fear was shortly augmented by the appearance of a Pretender, the first of a series, like Perkin Warbeck, of England. He claimed to be Dimitri, son of Ivan the Terrible, and appeared first in Poland, where he gained the credulity of the Court. After working his impostorship to the extent of gaining a Polish princess for wife and a substantial pension from Sigis-

mund III., the bigoted Roman Catholic king, he started on his campaign to oust the vigorous Boris. Several bloody encounters ensued, and many Russian prisoners were brutally shot, then to the surprise of all Russia Boris was suddenly taken ill in camp and died (1605) in intense agony, showing evident symptoms of poisoning, a familiar fate in those murderous times.

Although never loved, but rather hated and feared, this usurper was a great benefactor to Russia, for he realized she must acquire European civilization and break off her shackles of Asiatic contact. this end he persistently fought the Mongol invaders and to imbue the Empire with Occidental ideals sent many promising youths to European Universities. In one policy, however, he was damningly retograde, that of curtailing the freedom of the rural peasant, and by legal force binding him in serfdom to the soil. Further, he completely consolidated the autoeratic and despotic rule of the Russian erown

Boris secured the succession to his own son, Feodore, a lad of sixteen, but he was soon deposed, and the Pretender, entering Moscow in triumph, was proclaimed Tsar. The excited and easily deceived populace rose up and murdered Feodore and his mother, and ordered the body of Boris to be east from out the city, but Xenia, the beautiful young sister, was held prisoner by the conqueror.

Feastings and processions followed, but gradually the people grew distrustful of They found their city the usurper. swarming with Poles and with Jesuit priests, for the impostor appeared to favor Roman Catholicism rather than the Orthodox Greek Church. The following year the false Dimitri brought his Polish bride with splendid retinue to Moscow, but the Court which he established and the disdain of Russian customs which he exhibited so incensed the people that they formed a plot to take his life. Hearing the approach of the conspirators, he leaped from the palace window, but breaking his leg he lay an easy victim of the assassin's blade. His mutilated body was exposed in the Red Square for three days, then buried amid execrations, but shortly afterward it was exhumed and burned, 1606. As to who this impostor was appears not to be definitely known, although he is supposed to have been an unfrocked Orthodox priest Grishka Otreoiev.

The next Tsar Basil V. (1606-09), a conspirator against the Pretender, was elected by a special assembly of the Boyars (second rank of nobility), but he experienced many difficulties with a second false Demetrius, and also with the Poles, who carried him off a prisoner to Warsaw, where he died in a dungeon.

Ladislaus, the son of Sigismund III. of Poland, next proclaimed himself Tsar by force of arms, but he held power only two years, as the Russians, enfeebled though they were, would not tolerate one of the Latin faith. In quitting the country the Poles carried off immense booty from the Kremlin palaces and from the rich treasure of the churches. They also burned the city and slaughtered thousands of the inhabitants.

In spite of suffering national humiliation, Russian patriotism triumphed in the election of a ruler of their own race, Michael Romanov (1613-45), a youth of sixteen

(Continued next month from the first Romanov to the most illustrious Peter the Great.)



⁽It is claimed that no city in history has been fired so often as Moscow, the last time being during the occupation of Napoleon, 1812. Also no square has run red with so much blood as the Red Square of old Muscovy, which won the name from the gory slaughters of its early days.



XXI



ROBERT W. NORWOOD

"Mr. Norwood's is a new voice in Canadian poetry. But though new, it is a voice already mellowed, whose theme has been won out of years devoted to scholarship and philosophic thought; whose music has back of it a technique formed according to classical standards. Those who read Mr. Norwood's sonnets will note his faculty of choosing right words. of evolving fresh metaphor, of combining variety with beauty. of mingling perception and philosophy with musical skill. For the most part his sonnets are swift and tense, their ardor is genuine, felt, beautiful, the creation of a true poet. In his 'Dives' the poet sets out to discover rather than to accept. His text, for the poem has a text goldenly threaded into the warp and woof of the whole, is concerned with the mystic union of Christ with mankind. It is a text that goes down as deep as hell and which soars as high as heaven, to show that there is no duality, no dualism, no duarchy; that all things, create and uncreate, are governed from one point, made of one substance, vitalized by one principle-that Love is not only the fulfilling but the origin of the Law."

IT was Emerson who said that the chief event in chronology was the birth of a poet, and the great seer was right. But he meant of course a poet with the keen perception, the intense emotion, the comprehensive mentality and the imaginative vision of genius.

In the Rev. Robert W. Norwood, M.A., Rector of the Memorial Church, London, Ontario, whose first volume of verse, entitled His Lady of the Sonnets, appeared recently from the publishing house of Sherman, French & Company, of Boston, Canada has, I believe, just such a poet as Emerson had in mind.

This opinion is not based on the sonnet sequence, the title of which was selected as that of his book, brilliant, beautiful and rare as such an achievement is, but rather on the originality of conception, the imaginative reach and the dramatic power of the poet as exemplified in DIVES IN TORMENT, and in THE WITCH OF ENDOR an unpublished drama; on the comprehending sympathy and love and the new philosophic thought as expressed in another unpublished volume, SONGS OF A LITTLE BROTHER: and on the many evidences throughout his work of ripe and wide-ranging scholarship.

Mr. Norwood was born in Christ Church Rectory, New Ross, Lunenburg county, Nova Scotia, March 27th, 1874, son of the Rev. Joseph W. Norwood and Edith, daughter of Captain Hawkins. He was educated at Coaticook Academy, Quebec; at Bishop's College, Lennoxville, Quebec; and at King's College, Windsor, Nova Scotia, where he graduated in Arts in 1897 In December of the same year he was ordained deacon in Halifax by Bishop Courtney, and in the following year was ordained priest by the same dignitary.

At King's College, Mr. Norwood had the good fortune to have as his Professor of English Literature, Mr. Charles G. D. Roberts, who detected the poetic gift of the ambitious student, and so taught and encouraged him as to become the most moulding influence on his career.

Since his ordination, Mr. Norwood has held the following charges: Neil's Harbor, C.B., missionary; Hubbard's N.S., curate to Rev. Joseph W. Norwood; Bridgewater, N.S., curate to Rev. W. E. Gelling, whom he succeeded as Rector; Hoboken, New Jersey, curate to Rev. J. C. Mitchell; Springhill, N.S., Rector; Trinity Church, Montreal, curate to Canon J. M. Almond; and the Memorial Church, London, Ontario, Rector since 1912 in succession to Canon Dyson Hague.

While in New Jersey, Mr. Norwood took a post graduate course, at Columbia University, N.Y., in Philosophy: and in Theology at the Genera! Theological Seminary.

In 1899, Mr. Norwood was married to Ethel, daughter of Mr. George McKeen, M.A., of Baddock, C.B., and their two daughters and a son—Aileen, Robert and Jean—make glad the rectory, and inspire their poet-father to sing new songs.



HIS LADY OF THE SONNETS

(From the Sonnet Sequence)

II

I meet you in the mystery of the night, A dear Dream-Goddess on a crescent moon; An opalescent splendour, like a noon Of lilies; and I wonder that the height Should darken for the depth to give me light; Light of your face, so lovely that I swoon With gazing, and then wake to find how soon Joy of the world fades when you fade from sight.

Beholding you, I am Endymion, Lost and immortal in Latmian dreams; With Dian bending down to look upon Her shepherd, whose æonian slumber seems A moment, twinkling like a starry gem Among the jewels of her diadem.

IV

My love is like a spring among the hills Whose brimming waters may not be confined But pour one torrent through the ways that wind

Down to a garden; there the rose distills
Its nectar; there a tall, white lily fills
Night with anointing of two lovers, blind,
Dumb, deaf, of body, spirit, and of mind
From breathless blending of far-sundered
wills.

Long ere my love had reached you, hard I strove

To send its torrent through the barren fields; I wanted you, the lilied treasure-trove Of innocence, whose dear possession yields Immortal gladness to my heart that knows How you surpass the lily and the rose.

Like one great opal on the breast of Night, Soft and translucent, hangs the orb of June! I hear wild pipings of a joyous tune Played on a golden reed for the delight Of you, my hidden, lovely Eremite—You by the fountain from the marble hewn—You silent as in dream, with flowers strewn About your feet—you goddess, robed in white!

winte:
Mute and amazed, I at the broken wall
Lean fearful, lest the sudden, dreadful dawn
For me Diana's awful doom let fall;
And I be cursed with curious Actæon,
Save that you find in me this strong defence—
My adoration of your innocence.

VI

When from the rose mist of creation grew God's patient waiting in your wide-set eyes, The morning stars, and all the host that flies On wings of love, paused at the wondrous blue

With which the Master, mindful of the hue, Stained first the crystal dome of summer

And afterward the violet that vies
With amethyst, before He fashione d you.
And I have trembled with those ancient stars
My heart has known the flame-winged
seraphs' song;

For no indifferent, dreamy eyelid bars Me from the blue, nor veils with lashes long Your love, that to my tender gazing grows Bold to confess it: I am glad he knows!

VII

There came three wise men riding from the east:

One was a king and brought a gift of gold; And one bore frankincense that fate foretold; While myrrh was offered by a mitred priest. Nor ever hath Love's brave adventure ceased Since that fair night ashine with stars and

When even angels paused their wings to fold—Love to adore made one with man and beast. Accept three gifts I to thee gladly bring; Each hath its own divine significance: Gold is the Body thou hast crowned a king; My Spirit is the prophet's frankincense; Myrrh is the Mind which strives to tell thee all

Love's mystic and melodious ritual!

IX

Last night—or was it in the golden morn— Once more I dreamed that I alone did fare Forth into spirit-silences; and there I found you not; my star was set! Forlorn, I sought the kindred company of worn Andstricken souls—lost, sundered souls, who bear

Old and avoided crosses with each care
Woven together in their crowns of thorn.
Gods of the patient, vain endeavour, these
Claimed me and called me fellow, comrade,
friend.

And bade me join in their brave litanies; Because, though I had failed you, I dared bend

Before you without hope of one reward, Save that in loving you my soul still soared.

X

Last night I crossed the spaces to your side, As you lay sleeping in the sacred room Of our great moment. Like a lily's bloom, Fragile and white were you, my spirit-bride, For pain and loneliness with you abide, And Death had thought to touch you with his doom.

Until Love stood angelic at the tomb,
Drew sword, smote him, and life's door
opened wide.

Ilooked on you and breathed upon your hair—Your hair of such soft, brown, translucent gold!

Nor did you know that I knelt down in prayer,

Clasped hands, and worshipped you for the untold

Magnificence of womanhood divine— God's miracle of Water turned to Wine!

XIV

There needs must be misunderstandings, dear;

For love is more than the much-written word.—

Transcends it, as the home-flight of a bird
Is distanced by the sun. Let fall the fear;
Let joy and constant Certainty appear
Armed with angelic swords of flame that gird
Their thighs; for though the day with rain
is blurred,

Hark to the singing legions of the year! Always I find gain in lamented loss; Some treasure in the beaten path I tread; And that alone survives which bears a cross Branded by some hot trial that is dead. Last night as I was weeping someone cried: "Love cannot live save love be crucified!"

XVIII

And I have lost you, so the voices say— Voices that taunt, deride my silent pain; Voices that fall incessant, like the rain Throughout this dim and memory-haunted day!

Dear Love, come back, resume your ancient

sway

For my strong pleading! Or is it in vain
That I beneath the stars all night have lain
Prone upon earth, clay crying unto clay?
No answer. . . . O thou God-vacated sky,
Thunder upon my head the riving flame!
There is no more for me to do but die!
Or else for One, whom now I dare not name,
At crossroads of the world a watch to keep
With those who thither come, a while to
weep.

XXIV

I am all gladness like a little child! Grief's tragic figure of the veiled face Fades from my path, moving with measured

Back from the splendour that breaks on the

High hills of sorrow, where the storm-clouds piled

In drift of tears. Lo! with what tender

Joy holds the world again in her embrace Since you came forth, and looked on me, and smiled.

Down in the valley shines a scimiter— A stream with autumn-gold deep damascen-

And of the bards of day one loiterer Still lingers at his song, securely screened By foliage. Dear, what miracle is this, Transforming void and chaos with a kiss!

XXIX.

Here have we made fair songs on psalteries Played tenderly by lovers in all lands. Sometimes the strings are smitten by harsh hands

Of anger, doubt, and frowning jealousies; And sometimes are drawn forth sad threnodies

For dear Love dead. Let him who understands

Man's way with Woman loose the mystic bands

That bind my parabled heart-secrecies.

In dreams again o'er leagues of purple sea My bark is borne to some far, fabled strand: Dear, how the world is young! I seem to be One of famed Helen's lovers; her command Is in your eyes as you gaze forth from Troy Immortal in your beauty and your joy.



DIVES IN TORMENT

(Latter Half)

Lazarus! Lazarus! This is my thirst,
Fever from flame of the love I have missed;
Ache of the heart for the friends I have
cursed;

Longing for lips that I never have kissed!

Hell is for him who hath never found God Hid in the bramble that burns by the way; Findeth Him not in the stone and the clod; Heareth Him not at the cool of the day.

Hell is for him who hath never found Man! God and my Brother, I failing to find, Failed to find me; so my days were a span Void of the triumph of Spirit and Mind,

Once, I recall, at the table I leaned Back on the breast of Pomona, my slave, Saw through the window, with lattice-work screened,

Thee in thy rags, and I laughed! then grew grave:

8

Up the white street came a Man with a face
Sad with the woe and the pain of the world;
Moving with kingliness, ease, and a grace;
Crowned with wine-coloured hair wavy and

curled.

Over broad shoulders, so broad that I vowed

Here was Messias—the Samson—the King! Leaped from the table and joined with the crowd;

Offered my purple, my bracelet, my ring!

Then through the clamour and dust of the street

Words of rebuke were directed to me:
"Lift thou up Lazarus; give him a seat
High among all who are feasting with thee."

Lift up the beggar! I laughed at Him there—
"Thou and Thy tattered ones take to the street—

I to the palace . . Begone! . . And beware ! Caiaphas comes, and the Sanhedrin meet!

"Go! or I hale Thee to judgment of them; Go! or Thy God shall avail Thee in vain; Thou art of Japheth, and I am of Shem, Lazarus, outcast and cursed with Cain!

"Needs must there be a division of men; Hewer of wood is the Gibeonite, Cutter of stone in the quarries, and then Slave to the Covenant-Israelite."

"Nay, all are equal and loved of the Lord," Whispered the Stranger. The listening street Filled with the murmur of those who adored, Hushed at the sound of His voice that was sweet.

Stirring my heart as a harp in the hall, Silent for ages, is strired by the wind Breathed through the arras; and memories call

Over the summits of spirit and mind.

Yea, for a moment I struggled with Love; Yearned to embrace thee and pour on thy hair

Oil of anointing, and place thee above All of the guests who were gathering there—

There in my palace of pleasure and ease, Builded by Herod, and bought with my gold, Portaled and curtained with soft tapestries Woven at looms of the Orient, sold

Down in Damascus. A palm in the sands, That was my palace; a palm with a soul Breathing of beauty when each leaf expands Out to the desert which brims like a bowl—

Brims like a bowl of Falernian wine Turned to the sun! O my palace and hall! O sound of the psaltery under the vine Grown in the garden! O footsteps that fall

Soft as the leaves in a pomegranate grove, Soft on the pavement of beryl and pearl Under the moon when my Miriam strove, Laughing, to dance down the Syrian girl!

These thrust between my compassion and thee—

Beauty that mocked like a maid from her bower—

Beauty that looked through the lattice at me;

Sighed: "I have tarried, my Love, for this hour!"

Then to the palace all flaming I went, Flaming with love for Pomona, my pride. Back like a bow her dear body I bent, Kissed her and placed her in joy at my side;

Crowned her with myrtle, proclaimed her a queen:

Drank to her eyes and her lips and her hair; Clasped on her throat of an ivory sheen Gems of an order kings only might wear.

Oh, how she sparkled and gleamed like a sword!

Oh, how the cymbals and tabours did sound! Oh, my Pomona, my loved and adored— Dust of the body is dust of the ground!

For I forgot Him, and bought with my gold Houses and lands. Yea, I sought far and wide

Pleasure and ease. Then one day I was old. . . .

Darkness came over the noon . . . and I died!

Dead and companioned in pomp to the grave Dead and forgotten in less than a day Save by Pomona, my mistress and slave Sold unto Herod! . . Oh, she had a way,

Turn of the head and glance of the eye!
Touch of the hand and a fall of the feet!
Voice that was coo of the dove and a cry
Heard in the night when the seraphim meet!

Sometimes I fancy Gehenna's abyss Gleams with a light that is love; and I feel Lips on my lips in the tenderest kiss, Making hell heaven: as though the appeal

Sent from my soul to Pomona had gained Heart and the whole of her throned on a star, Where for an æon of bliss she hath reigned Lonely for Dives so lost and afar!

Lazarus! Nearer! The light on thy face Shines through the dark! Oh, what glory is thine!

Nay, not too near lest thou see my disgrace Naked! behold bruised the image divine! Lazarus! Pity! Pursue not my soul Down the last gulf! I am fearful of thee— Not of Jehovah, Whose thunders may roll Over my head—Have thou pity on me!

This have I learned in the torment of hell:
Man is the judge of the soul that hath sin;
Man must raise man from the depths where
he fell,

Hurled by the hand of his passion. Begin,

Lazarus, Lord of the Light and the dark; Stand on the cloud that hath bridged the abyss,

Judging my cause; for my spirit is stark Under thy glance in abandon of bliss!

Yea, there is joy in the judgment; a peace I have not known in an æon of pain; Joy in the thought that thy love will not cease

Till it hath cleansed all my spirit from stain.

Therefore I hail thee, O Lazarus! cry:
"Hail to the love that restoreth the years
The locusts have eaten! Search me and try
The thought of my heart and the tale of my
tears!"

Try me and prove me; for I am undone, Conquered by love of a love that hath sought Me unto hell! Thou hast triumphed and won,

Lazarus, who for my spirit hath fought.

Yield I the trophies of battle; lay down All of the pride and the hatred of heart; Weeping I give thee my sceptre and crown; Nothing I claim; not a tithe, not a part!

Lazarus, art thou the same that I saw Begging for crumbs? Thou hast changed, thou hast changed!

Through what dominions of wonder and awe, Beauty and joy, hast thou ranged, hast thou ranged?

Kingly and glorious, mantled with flame, Lo! in thyself the Messias I see. Lazarus, thou and the Christ art the same, Thou art the Christ and the Master of me—

Thou art Messias! . . . And this Paradise! . . .

There is Pomona! . . . There Mother who gave

Breast to her babe! . . . From Gehenna I rise

Cleansed by a love that is mighty to save!

Light, and the sound of a song that is love! Light, and the freedom of spirit to soar! Light, and Messias enthroned above High where the seraphim bow and adore!

DAVID'S SONG TO MICHAL

FROM "THE WITCH OF ENDOR"

O Heart, dear Heart, Heart of the wild, red rose!

Hid in the loveliest flower that grows; Hands of the seraphim scatter, let fall Myrrh from thy leaves in the garden of Saul.

O Heart, dear Heart, Heart of the wild, red rose!

Breath from the lips of the cherubim blows Soft on thy petals; they whisper and call, Laugh and are glad in the garden of Saul

O Heart, dear Heart, Heart of the wild, red rose!

Flame from the gold of the Mercy Seat glows,

Shines likd a star on my love's festival; Michal is mine in the garden of Saul!

DAVID BEFORE SAUL

FROM "THE WITCH OF ENDOR"

Down by the stream of the waters Came the king; and his face was sad, Sad with a grief beyond belief, For a bitter grief he had: To be a king means sorrowing— A king may not be glad.

Down by the stream of the waters Came the king, and alone at night: His robe was torn, a crown of thorn Was on his brow so white: They placed it there, who did not care His eyes with tears were bright.

Down by the stream of the waters, Where it flows through the valley of death, He came, the king, all sorrowing; A sob was in his breath: They broke his heart, who stood apart— The crowd that wondereth.

Art and Artists in Canada

By KATHERINE HALE

[By the introduction of this department, it is hoped that a new meeting ground will be found for artists in music, drama and pictorial art. All communications relative to the department may be forwarded to Mrs. John W. Garvin (Katherine Hale), 117 Farnham Ave., Toronto.]

SCATTERED all over Canada there are musical, dramatic and literary clubs which foster the professional and

amateur aims of the art to which they are especially devoted. It may be interesting to the public to learn something of a Toronto Club for women which, as it is exclusively professional, gives the guests of members only an occasional glimpse of its doings.

The Heliconian club was so named by Mr. Goldwin Smith, when it was formed some vears ago. His oldworld courtesy sought an elaborate compliment in this allusion to the "hill of the muses." The club was designed for the use of members of the allied arts, so that musicians, writers, and artists might meet for the good of their work and the diversions of camaraderie.

Lately the club has been installed in its own quarters, where two large rooms can be turned into uses for concerts, plays, recep-

tions, and sewing rooms for patriotic work. The charm of firelight plays over gay yellow hangings, picture-hung walls, quaint potteries, brasses and embroideries.

Here is a little world in itself, through which pass more than echoes of a greater world in the occasional coming of persons

that have stirred the hearts of men and women as only great forces stir them, and pictures sometimes hang here that are in truth "windows on a larger life."

Since this brief season has begun, we have had in most informal fashion a visit from Madame Melba. who seemed to feel very much at home. and the Italian singer, Madame Villani, who came with others of the Boston Opera Company, including Tamaki Miura, the Japanese who sang "Butterfly" as it has never before been sung by any artist. She was a sweet, quaint figure, and appeared in very much the same dress as the portrait which we reproduce. A grave and ceremonious child she seemed, but a child with a very old soul who suddenly made the rest of us feel

MIURA made the rest of us feel large and impolite.

Madame Miura was trained at Tokio by the Italian method, and her voice is the most delicious, exquisite and un-European thing you could possibly imagine. It smells of



TAMAKI MIURA

almond blossoms, and through it you dimly hear the far-off call of an Eastern pipe. The acting is at one with the voice: all light, starry, and in the strange way that only Orientals know, disembodied. Tamaki Miura is one of the loveliest visitors that Toronto has ever had, and surely no city of its size ever held open doors to a more shining troop of stars.

Before the appearance of the Boston singers we had at the Heliconian Club a lecture on the new operas to be presented here—"The Dumb Girl," and "The Love"

of Three Kings"by Mr. J. Allan Dun B.A., a delightful speaker whose work is in its way as important as that of the singers themselves. "The Travelling Man" by Lady Gregory was cleverly put on by Mrs. Scott-Raff, whose love for the Irish drama has borne good fruit in Canada, and we have also had appearances by such well known artists as Miss Brenda Macrae, who has had much success in New York and is in Toronto for a short time, Mrs. Leonora Kennedy, Mr. Redferne Hollinshead and others.

The Toronto String Quartette is giving a series of four concerts, under the auspices of the

Heliconian Club, for Patriotic purposes.

There has recently been an exhibition here of the work of Laura Muntz, the distinguished artist who is now established in Toronto through her recent marriage to Mr. C. W. B. Lyall.

Most readers know the canvasses which have made this Canadian woman so justly famous. A slight sketch of her career may recall to readers that Miss Muntz, while born in England, came to Canada when she was only nine years old, and after "milking and bread-making on a farm" (her father's farm) as she picturesquely puts it, she broke away into that world of art which calls so insistently to the youth that must dwell therein. Soon came opportunities to learn about pictures through reproductions of the Masters in some of those old Roman Catholic Churches in Montreal, and also in private collections, where Sir William Van Horne

and other well known artlovers proved good friends. In the home of Sir William Van Horne especially Miss Muntz saw wonderful old pictures of Italian Madonnas who melted into golden backgrounds and spelled enchantment to ber mind. She watched the mellow lights that seemed to play upon these old pieces as one fascinated, and she determined that if work and patience and great desire could do it she too would paint Madonnas against some golden or oldworld back-ground that spelled enchantment.

And that very thing she has done.

There is an atmosphere of the old masters about a Muntz canvas that

is to me quite as satisfying, and perhaps more haunting, than that which surrounds the Revered Ones themselves.

You see, they did get a little out of drawing in the ancient days and Laura Muntz doesn't do that. Moreover, she gets that mystical light on her subject that is like the effect of sunshine through wonderful old stained glass. It falls about the wings of



THE GIRL WITH DAFFODILS

that great "Guardian Angel" whose inspiration was Mrs. Browning's poem of the same name that made the artist justly famous years ago, it steals up from red poppies, it surrounds this "Girl with Daffodils," and those Madonnas of hers that are really human and divinely maternal.

No wonder the judges for the Paris salon gave this artist the coveted Honorable Mention, and that her work is to be found among Government, and the best private collections in her own and other countries. She has fought the hard battle of art and won.

Among many interesting facts in the career of Miss Muntz is one of especial note. She was the first woman in Paris to inaugurate a night class for women only in the study of still life and the nude. That is to say that previous to this innovation, which Miss Muntz felt to be highly necessary, men and women studied together, using one model. With the endorsation and help of M. Collarossi, the Canadian artist organized a class in the Rue de la Grand Chaumiere, which, in its way, revolutionized art work for girl students in Paris.

"Hidden fires!" that phrase ran constantly through one's mind in listening to the music of the three Russians—Leo., Jan and Mischel Cherniavski—in their trio and solo work at Massey Hall on Nov. 13th.

It was a meeting of three nations under picturesque circumstances. The hall was blocked all over with groups of young Canadian cadets in the regulation khaki who were there to do honor to their Australian naval brothers who were passing through on their way overseas. Young Canada was a bit restless under pressure of chamber music. Australia was quiet and polite. The grownup, Toronto-Recruiting-Society audience, aided and abetted by many musicians, were caught in a breathless attention and over it all poured Russia; the Russia of fire, dust, flame, snow, of bitterness and of abandon, of life and death, of wildness and submission. Just three young men with a violin, a cello, and a piano to play. Young men a little bit rouged and curled, pink finger-tipped, and quite prepared to conquer an audience however crudely Canadian. But oh, what history behind them! And what souls and fingers to play with! The faces and every nerve and muscle of the body expressed each moment of feeling that the composer was depicting.

The programme itself was really quite hackneyed. It began with the well known Mendelssohn Trio No. 1, and ended in the little Serenade of Widor that one hears in any restaurant any day, the "Moment Musical" of Schubert, and a "Slav Dance" by Brahms-all "stock pieces." Moreover, Jan Cherniavski, at the piano, actually stooped to the banality of the Verdi-Listz arrangement of the quartette in Rigoletto. But the whole thing was in the way it was done, the fierceness, the intense appeal to a sort of nervous emotion with which the men themselves were so completely filled, In the abandon of that music one saw again Pavlowa and her wonder train dancing in the blue mid-winter forest as we had seen it the week before in that marvellous Russian ballet called "Snowflakes."—The same wild spirit, the intense working of mind and nerves, which makes such dancing and such music a sheer delight.

During the song recital of Mr. Arthur George, in Forester's Hall, in November, one was back again in Italy. That warm southern baritone, careful of the best traditions too of the much talked of and seldom accomplished bel canto, was a joy to hear, and a pride to know Canadian. Particularly beautiful was the rendering of Giordini's "Caro Mio Ben." Mr. George can sing mezzo voce with the most exquisite effect, a thing that is always so much more difficult of accomplishment than the full tone.

Grand Opera with the San Carlo company and a debut for the Toronto singer Miss Margaret George, who sang the role of Santuzza in Cavaleria Rusticana. filled the third week of November full of interest for Toronto musicians. The work of Mesdomes Vaccarri and Charlebois stood out among the women taking principal roles, while in the production of l'Pagliacci Giuseppe Agostini, taking the part of Canio, proved himself to be an exceptional actor as well as singer. Miss Margaret George essayed a difficult role in that of Santuzza and showed a decided mental aptitude for the three-fold art of the opera singer, which must include a sense of picture - making and the ability for rythmic action as well as singing. She "trod the boards," to use a Victorian phrase, as if she were very much at home, with none of the usual gaucherie of the debutante and carried out her part with a sure conviction.

What a contrast to the wild colour of that youthful music of the Cherniavski Brothers was the sombre piano recital of the great Polish Master Paderewski. Into his work goes maturity, patience, the understanding of sorrow and the untamable fires of genius. He came upon the stage and he played like a man weighed down with the tragedy of life, not only as it affected him but as it touched his brothers. Could some envoy from another world have entered that hall he would surely have known, through the medium of the pianist, that a great tragedy was shaking the earth. Paderewski told it all in the many moods of Schuberts' great Fantasia, in the gossamer whisperings of Chopin, the Etudes Syphoniques of Schuman. But it was all borne up from anything like a mere mood of sadness to that of majesty and at-oneness with the sacrificial demands of life. The greatest audience that has ever greeted a pianist in a recital in Toronto welcomed Paderewski back.

The dramatic event of the month was undoubtedly the appearance of Mr. George Arliss, at the Grand Theatre, in Edward Knoblauch's three-act comedy Paganini. Subtle, exquisite, depicting with a sincere fidelity the wayward, irresponsible, meteorlike temperament of the great violinist. Arliss was as always a delight. He becomes more and more minute and intimate in his work; his facile expression, that tiny and most expressive of voices, his comprehensive. but fluttering gesture, these things, hard to define, leave his pictures indelible in the memory. In his own art he is what Knoblauch says in the play of genius "a bit of sky fixed on the floor of the world."

Great success has marked the singing of the well known English recruiting song: "Your King and Country Needs You" in the Plaza theatre, New York, by the Toronto singer, Miss Margaret Beattie, a pupil of Miss Marie Strong. Miss Beattie, whose voice is said to be of exceptional quality, was recalled many times: the sympathy of the great American audience being evidently with the singer as well as the song.



THE STANDARDIZED DEATH RATE OF ALBERTA, 1911

By Fleet Surgeon W. E. HOME, R.N.

HE population of the Province of Alberta, as at June 1st, 1911, was 374,-663 persons, of whom 5,465 were Indians and 369,198 whites, as shown in Table I. in detail. Amongst the Indians there were 230 deaths, giving a crude death rate of 42. The registered deaths of whites, stated on page 82 of the Annual Report of the Department of Agriculture for Alberta, were 3,618, and, 160 still births being deducted, we get 3,465 (the number given at p. 96), equivalent to a crude death rate of 9.37. The figures in the same year were for England and Wales, 14.6; for the registration States of the United States, 13.9; but we know that all these figures require to be standardized. We must first note that 5,127 persons

vere enumerated without record of their ages and that 12 deaths are recorded with age unstated. These will have to be neglected, though they correspond to a death rate of .1 per thousand. We are then left with a population of 364,071 whites, amongst whom there were in the year 3,446 deaths. The people are arranged into the 12 age groups of the England and Wales grouping by sexes in Tables II. and IV. In ble IV. men are on the left reading to the right, females on the right, reading to the left, and similar columns have the same numbers. Columns 2 give the total population in the grouping of the Indian report. Columns 5 show the similar age distribution of the white people by themselves. The proportion of whites in each group is shown in Table II., where the factor is stated which enables us to calculate as nearly as may be from columns 4 the figures for whites in columns 6, from which by slight rearrangement we get what we are seeking, the numbers in columns 7. Columns 8 give the standard death rate for England and Wales 1901-1910, and columns 9 the deaths that would have resulted had these been the death rates of

Alberta throughout the year, and it is these figures which are put out in the upper part of the Alberta diagram. When columns 9 are summed up separately and put together, as at the foot, we get 4,616 as the number of deaths expected at standard rates from the 364,071 non-Indian people in the Province, grouped for age and sex as they are, and 4,616 divided by 364,071 gives us 12,953, the index death rate for Alberta. The index death rate for England and Wales is 16.9 and the standardizing factor is therefore, as we said in

September, $\frac{16.9}{12.953}$ =1.304, which signifies

that the population of Alberta, being in age and sex distributed as it is, would be expected to show a death rate only three-quarters of that of England and Wales, and that therefore before we compare the death rates of the two countries we must multiply the Alberta crude death rate in any year by 1.304, which being done, we get 12.2 as the standardized death rate of Alberta in 1911, the figure which will represent in the statistics of the Empire, as nearly as we can arrange, the risk to life and the efficiency of sanitary administration in the Province of Alberta.

Concerning the diagram I would say that in Table III. there are stated the number of persons in every thousand of population in England and Wales to be found in each of the age groups mentioned and also the number of deaths which would occur amongst the people of each group in the year at the standard rate.

In the diagram these thin upper lines are deaths, not death rates, and the lines are on a scale ten times greater than the broad lines below. The deaths for England and Wales sum up to 16.9, for Alberta 12.6. The lines are drawn for each five years of life, the figures stated for ten-

year groups being halved, and the diagram shows, by the thick lines, the age distribution of the populations of England and Wales (1901, standard), and of Alberta, 1911, and by the thin lines, the number of deaths due from each five-year group at the standard rate (mean of England and Wales death rates, 1901-1910). The diag-

ram has been drawn to let everyone see how different must be the death rates of these communities, merely because their age constitution is different, for the death rates in each community are the same for each different age, though the total of deaths in England and Wales is so much greater.

TABLE I.
POPULATION OF ALBERTA, 1911.
[AGES OF INDIAN REPORT

		TOTAL			INDIAN			WHITE	
0.5 6.15 16.20 21.65 66 up	PERSONS 57,085 69,119 32,876 205,309 5,147 369,536	MALES 29,009 35,583 18,898 133,364 3,025 219,879	28,076 33,536 13,978 71,945 2,122 149,657	1,178 1,056 588 2,462 181 5,465	MALES 601 578 302 1,201 57 2,739	577 478 286 1,261 124 2,726	PERSONS 55,907 68,063 32,288 202,847 4,966 364,071	MALES 28,408 35,005 18,596 132,163 2,968 217,140	FEMALES 27,499 33,058 13,692 70,684 1,998 146,931

TABLE II.

ALBERTA, 1911.

PROPORTION OF WHITES IN TOTAL POPULATION.

		MALES		1		FEMALES		
0.5 6.15 16.20 21.65 66 up	707AL 29,009 35,583 18,898 133,364 3,025	WHITE 28,408 35,005 18,596 132,163 2,968	RATIO .99091 .99288 .99300 .99507 .99174	Log of Ratio	TOTAL 28,076 33,536 13,978 71,945 2,122	WHITE 27,499 33,058 13,692 70,684 1,998	RATIO .99098 .99376 .99102 .99232 .97385	Log of Ratio

FOR 1,000 POPULATION.

TABLE III.

AGE DISTRIBUTION AND DEATHS DUE.

	ENGLAND .	AND WALES		ALBI	ERTA
0.4 5.9 10.14 15.19 21.24 25.34 35.44 45.56 65.74 75.84 85\u00e4up	PER 1,000 114 107 103 99.8 96 161 123 89 60 . 33 {13.6	DEATHS DUE 5.2 .38 .22 .3 .3 .36 .82 1.02 1.27 1.67 1.94 1.95	PERSONS 47,442 38,932 31,868 30,450 41,704 80,091 47,663 27,240 12,832 4,460 1,210 179 364,071	PER 1,000 130 107 87 84 115 220 131 75 35 12 3	DEATHS DUE 5.86 .37 .18 .25 .44 1.13 1.09 1.08 1.00 .71 .45 .13

ALBERTA, 1911. Age and Sex Distribution.

MALES

FEMALES

14.0 2.306 2.306 2.4 3.0 4.0 3.0 4.0 3.0 4.0 3.0 4.0 3.0 4.0 3.0 4.0 3.0 4.0 3.0 4.0 3.0 4.0 3.0 4.0 3.0 4.0 3.0 4.0 3.0 4.0 3.0 4.0	TOTAL POPULATION: Report Infermediate Ave Group	DTAL POPULATION: Intermediate Age Group	ULATION:	ON:	qno			Reg.	HITE	WHITE POPULATION:	LATIC	ON:	-45	In	TOTAL POPUL	TAL PO	TOTAL POPULATION:	N: Indian	V: Indian Report
Colored Colo	Age Group	intermediate age croup	termediate age croup	dnoto age age	dino			MCB	stidi	rener al	280	dronb		4	Ter mediat	2000	d d	Age	Group
3a 9a 10 9e 8e 7e 6e 5e 4e 3e 2e 1 1 1200 0.4 976 41.9 23306 23306 27499 23795 0.4 2e 2e 0 6 9.6 3.6 19001 4193 27499 4281 5 2e 0 4281 5 2e 0 4198 0 4281 5 2e 0 4198 6 2e 0 4281 15 15 16	sə8y							Standard Death Rate	Deaths Expected	Ages	Deaths	Standard Death Rate	*				essy		Ages
5 69 5.9 68 3.6 19001 4193 27499 23795 0.4 28076 9 1 34 10.14 34 2.2 15520 33058 15744 10.14 33536 6.9 1 34 10.14 34 2.2 15520 15620 33058 15744 10.14 33536 6.9 2 15.19 39 2.9 13601 2730 1580 20 1570 15 2 116 20.24 44 3.5 13955 11134 11332 21.24 10.14 2 280 35.44 129 7.5 17224 17224 17224 17234 10.1531 21.24 2 280 35.44 129 7.5 17224 17224 17246 25.34 10.146 10.146 10.327 45.54 71945 21. 8 172 6.5.74 97 53.9 1795 1446 1536 66.74 7 101 75.84 57 14 78 1998 508 75.84 2122 66 2 29 85 up 14 74 78 149657	2a 3a 4a 5a 6a 7a	4a 5a 6a	5a 6a	6a		7.a		80	9a	10	96	98	28	99	5.0	6.4	30	26	1 6
5 69 5.9 68 3.6 19001 4193 27495 4281 5 20070 9 1 34 10.14 34 2.2 15520 33058 15744 10.14 33536 6 2 15.19 39 2.9 13601 2730 1598 16.19 13978 16.19 2 116 20.24 44 3.5 13955 11134 11332 21.24 20 2 280 35.44 129 7.5 17224 27004 27044	0.4 24647)	4 24647 \ 24136	24136	24136		24136		20	1200		926	41.9	23306	23306	00070	23795	0.4	20000	
34 10, 14 34 2, 2 15520 15520 33058 15744 10, 14 33536 6, 9 1 52 15, 19 39 2, 9 13601 2070 15 2770 15 2 116 20, 24 44 3, 5 13955 11134 27486 25, 34 2 280 35, 44 129 7, 5 17224 17224 27064 27064 17531 35, 44 2 277 45, 54 120 24, 8 4827 4827 4914 55, 64 3 172 65, 74 97 53, 9 1795 349 55, 64 4 16 16 16 16 16 16 5 1835 146931 146931 146657 149657 149657 3 40, 14 129 129 146931 146657 149657 3 40, 14 120 12, 146 146931 146931 149657 149657 3 3 40, 14 140, 140, 140, 140, 140, 140, 140, 140,	29009 5 4362 \ 28408 4272 \ 19931	4362 \ 28408 4272 \	\$ 28408 4272 {	4272 (~	19931			69		8		19001	4193	(1433	4281	ıs	20010	
34 10, 14 34 2.2 15520 15520 33058 15744 10, 14 33536 6. 15 52 15, 19 39 2.9 13601 2730 2770 15 2880 20 13978 16. 2 116 20, 24 44 3.5 13955 11134 27486 25, 34 27746 25, 34 277486 277486 27	6.9 15918 15659 (15659)	9 15918 15659 () 65951	-	-	TOCCT			0		00		10000	14808		15022	6.9		_
1 52 15.19 39 2.9 13601 2770 15 16 19 18602 20 13602 20 13602 20 13602 20 13602 20 13602 20 13602 20 13802 20 13802 20 13802 20 13802 20 13802 20 13802 20 13802 20 13802 20 13802 20 13802 20 20 13802 20 13802 20 13802 20 13802 20 13802 20 13802 20 13802 20 13802 20 13802 20 13802 20 13802 20 13802 20 13802 20 13802 20 1446 2	35583 10.14 16618 35005 16348 16348	16618 35005 16348	35005 16348	16348		16348			34	10.14	34		15520	15520	33058	15744	10.14	33536	6.1
2 116 20.24 44 3.5 13955 2821 13692 2880 20 21.24 2880 35.44 129 7.5 17224 70684 129 277 45.54 126 12.5 10146 10146 70684 10327 45.54 21.24 2 277 45.54 126 12.5 10146 10146 70684 25.34 21.24 4914 55.64 120 24.8 4827 4827 4914 55.64 26.74 37 53.9 1795 1446 55.64 25.34 2122 66.74 37 5.84 57 119.8 478 478 1998 50.9 75.84 2122 66.74 37 65.04 378 14998 50.9 75.84 2122 66.74 37 67.84 2122 67.84	15 3047	3047	2998	~	~	40040			63	10 10	96		10261	2730		2770	15		_
2 116 20.24 44 3.5 13955	18898 16.19 14076 (19851) 19851	14076 \ 13851 \	13851 (13851	-	10043			20	10.13	n		100001	10871	12000	11098	16.19	12070	1 30 0
6 297 25.34 127 4.7 27004 27004 [1332 21.24] 2 280 35.44 129 7.5 17224 17224 70684 [1531 35.44 71945] 2 277 45.54 126 12.5 10146 10146 70684 [1531 35.64 71945] 8 254 55.64 120 24.8 4827 4827 4914 55.64 355 66.74 7 101 75.84 57 119.8 478 478 1998 [508 75.84 2122] 8 172 28 5 up 18 250.3 74 74 74 74 85 up 2 29 85 up 18 250.3 74 74 74 74 74 74 8657 2 281 1835 146931 146931 149657 149657	20 4822 \ 16550 4745 \ 557740	4822 \ 10350 4745 \	(16090 4745)	4745)	~	97740			116		**		13055	2821	75051	2880	20	01667	10.0
2 280 35.44 129 7.5 17224 17224 17231 35.44 17945 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	21.24 23213 23004 (2173	23213 23004 (23004 (-	-	61113			011		7		-	11134		11332	21.24		_
2 280 35.44 129 7.5 17224 17224 70684 17531 35.44 71945 21.2 277 45.54 126 12.5 10146 10146 70684 10327 45.54 71945 21.2 21.2 5.64 120 24.8 4827 4827 4914 55.64 2	25.34 53570 53087 53087	34 53570 53087	53087			53087			297	25.34	127	4.7	27004	27004		27486	25.34		
2 277 45.54 126 12.5 10146 10146 10327 45.54 11945 2124 8 254 55.64 120 24.8 4827 4827 4914 55.64 15	35.44 30716	30716	30439	30439		30439			280	35.44	129	7.5	17224	17224	20004	17531	35.44	21045	200
8 254 55.64 120 24.8 4827 4827 4914 55.64 8 172 65.74 97 53.9 1795 349 55.64 7 101 75.84 57 119.8 478 478 1998 508 75.84 2122 65 2 29 85 up 18 250.3 74 74 78 85 up 78 85 up 75.84 116931 149657 149657	155354 45.54 17249 152103 17094 17094	17249 132103 17094 1	132103 17094 1	17094		17094			277	45,54	126	12.5	10146	10146	10004	10327	45.54	04617	0.12
8 172 65.74 97 53.9 1795 349 355 65 7 101 75.84 57 119.8 478 478 1998 508 75.84 2122 66 2 29 85 up 18 250.3 74 74 78 85 up 85 up 85 up 476 78 85 up 85 up 75.85 146931 146931 149657 149657	55.64 8077 8005 8005	8005	8009			8005			254	55,64	120		4827	4827		4914	55.64		
7 101 75.84 57 119.8 478 1998 508 75.84 2122 66 2 29 85 up 18 250.3 74 74 78 1998 508 75.84 2122 66 2 29 85 up 18 250.3 74 74 78 1998 508 75.84 2122 66 2881 1835 146931 146931 149657 149657 149657	65 539 534 534	539	534)	~	~	3000			179		0.7		1705	349		355	65		
7 101 75.84 57 119.8 478 478 1998 508 75.84 2122 66 2 29 85 up 18 250.3 74 74 78 85 up 2881 1835 146931 146931 149657 149657 4716 22.95	66.74 2172 2131	2172 2131 }	2131	-	-	2002			7		ñ		2 5611	1446		1536	66.74		_
2 29 85 up 18 250.3 74 74 78 85 up 2881 1835 146931 146931 149657 4716 = 12.95	3025 75.84 746 2968 732 732 1	746 2968 732 732	2968 732 732	732 732	732		_		101		22		478	478	1998	508		2122	n 99
1835 146931 146931 146931 149657 4716 12.95	85 up 107 105 105 2	up 107 105 105	105 105	105	105		64		59	dn 98	18		7.4	74		78	85 up		
11	219879 217140 217140 217140	217140 217140	217140 217140	217140					2881		1835		146931	146931	146931	149657		149657	
									10	4716		95							





